THE SINGER COMPANY
SIMULATION PRODUCTS DIVISION
BINGHAMTON, NEW YORK

NASA CR
147124

DRL No. 4
DRD No. CM-024TC

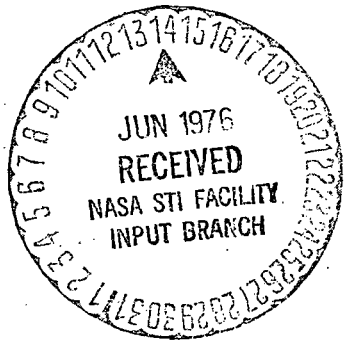
REPRODUCIBLE COPY (FACILITY CASEFILE COPY)

SMS
Design Review Summary Report

"Preliminary" - NASA Approval Pending

NASA Contract NAS-9-14910
Type 1 Data

Date: April 30, 1976



REVISIONS	PREPARED BY (TYPE OR PRINT)	DATE	PREPARED BY (SIGNATURE)	DATE	CHECKED BY	DATE	APPROVED	DATE
ORIGINAL					K. Hunt	4/29/76	D. Hiser	4/28/76

FOREWORD

The Design Review Summary Report is prepared in sections, with each section representing a system or equipment development activity. The information contained in this document is required 10 days after the respective CDR's and PDR's. Since CDR's and PDR's are scheduled on an incremental basis, the Design Review Summary Report sections are prepared incrementally with the scheduled dates for associated CDR's and PDR's.

Design Review Summary Reports
DRL Item 4, DRD CM-024TC

1. General

The Design Review Summary Report for the Shuttle Mission Simulator (SMS) are contained in separate sections of this document. These sections are generated individually for use during the design reviews held for the applicable systems of the SMS.

The sections of the SMS Design Review Summary Report are listed below:

Section 1 - Electrical Power System (EPS)

Section 2 - Mechanical Power System (MPS)

Section 3 - Main Prop and Ext. Tank

Section 4 - Solid Rocket Booster

Section 5 - Reaction Control System

Section 6 - Orbital Maneuvering System

Section 7 - Guidance, Navigation & Control

Section 8 - Comm and Tracking Insts.

Section 9 - Env. Cont. & Life Support

Section 10- Data Processing System

Section 11- Mechanical System

Section 12- Payload Accommodation (Not Required)

Section 13- Vehicle Dynamic System

Section 14- Mission Control Center Interface

Section 15- Image Generation System

Section 16- Image Display System

SMS-DRSR

Identifying
Incremental Section
Release Sheet

This release of the Design Review Summary Report contains Sections 20, 22, and 24. NASA W.P. #'s 20, 22, and 24. This is a partial release for WP #24, other increments will follow.

DRL #4
DRD #CM-024TC

Section 20

Section 22

Section 24

1. General

These PDR's were held 4/20 and 4/21/76. This release contains all Program Directives written during the PDR's, as well as minutes, and handouts. Engineering documentation updates will be submitted under another letter.

2. Attendees

Personnel in attendance at the various PDR's are listed on page 1 of the respective PDR minutes. One set of signed-off minutes are enclosed for each PDR.

3. Program Directives

All Program Directives were dispositioned the day after PDR, and are included in this DRSR as completed directives.

4. Action Items

If an action item was assigned, it is listed in the respective set of PDR minutes.

POWER SYSTEM

PRELIMINARY DESIGN
REVIEW MINUTES

APPROVAL: Tom Gerek
TOM GEREK
SECTION CHIEF

APPROVAL: Bert Gifford
BERT GIFFORD
TEAM LEADER

Power PDR

Attendees:

Bruce Stach, P.T.	Glenn Hiser
Charles Olasky, P.T.	Tom Gerek
Robert Meyers, P.T.	Abe Ulangca
Cliff Mire	Fred Carver
Bert Gifford	B. Steckert, P.T.
K. Hickling, P.T.	G. Chiesa, P.T.
P. Valochovic, P.T.	

P.T. - Part Time

Discussion:

Tom Gerek presented an overview of the SMS powersystem and turned the meeting over to Fred Carver for detail presentation.

A revised EDR figure 4.6.1.2, overheat warning, was handed out (see Attachment 1) as well as an overall bus configuration (see Attachment 2).

Discussions began on EDR figure 4.1.1. A question was asked concerning the CB rating. SPD answered that the current rating was based on information listed in the Data Book.

NASA asked whether the FBCS/MBCS power was separate as required by the SOW. SPD responded that the power control was separate even though it is a common power cabinet. Emergency OFF will shut down both complexes, however.

NASA asked if Emergency OFF will drop air conditioners and MBCS lift platform. (Ref: EDR figure 4.1.2). SPD answered these were not affected by Emergency OFF.

NASA asked if the NSS capability was included in this PDR package. SPD answered not at this time; when the design concept becomes firm, the documentation will be updated. Present plans appear to require another bus system which may require a larger cabinet.

SPD presented the power sequencing (Ref: EDR figure 4.2.1):

1. Normal/Disable - Must be in Normal
2. Manual - Must be held for 5-7 seconds
3. System ON - Allows power to power cabinet logic
4. Contactor Switches - Apply power to individual pieces of equipment.

SPD presented the grounding philosophy (Ref: EDR figure 4.4.1) SPD questioned the facility ground, i.e., should the neutral and chassis/signal grounds be separated in the PDU. NASA stated that

Building 5 has separate earth grounds, but this earth ground may not be tied back to transformer ground. This may cause a ground potential difference between neutral and chassis/signal ground if they are not tied together in the PDU.

Action: SPD 1 - Measure the ground potential of the earth/neutral grounds.

Discussion ensued on grounding of cabinets. The X-T recorder was discussed. NASA requested that the chassis ground be returned to the power cabinet in the power cable.

Action: NASA 1 - Inform SPD as to whether the 400 Hz power is ground isolated or not.

SPD presented the Emergency OFF System (Ref: EDR figure 4.5.1). Discussion ensued on the Emergency OFF availability/motion disable availability in the Crew Station. NASA generated Program Directive N24-001P. Computers and SID will be dumped when Emergency OFF is activated. Emergency OFF switches are unlighted.

EDR figure 4.6.1.2 (Overheat Detection System) was discussed. SPD stated that there are overheat detectors located in areas where DC power supplies are housed. Lights on cabinets & OS will illuminate and trigger aural alarm when overheat condition exists or test switch on OS is depressed. The DU airflow sensors are also connected to the Overheat Warning System.

EDR figure 4.6.1.1, Overheat Detection Circuitry, was shown and discussed.

Visual power and grounding system is separate and will be discussed during the Visual System PDR.

Discussion of the CEI was held to make the CEI's to be 1 Book with various sections for each end item. All the boilerplate items would be included only once and each section would address the unique items for each work package.

The following comments were discussed concerning the boilerplate areas:

a. Paragraph 2.0, Applicable Documents

   Singer will take action item to clarify the wording so there will be no conflict with the SOW Addendum A.

b. Paragraph 3.3.3

   Remove the comment concerning the power connectors and add to the pwoer unique section.

c. Paragraph 3.3.3

Add the sentence, "Commercial.....process" from SMS Addendum A, Paragraph 3.4.3.1.

d. Paragraph 3.3.3.1

Remove the last sentence.

e. Paragraph 3.3.7

Change MIL-D-1000 to MIL-STD-100.

f. Paragraph 3.3.9

Singer will take an action item to decide what specification it will abide by and present to NASA for approval.

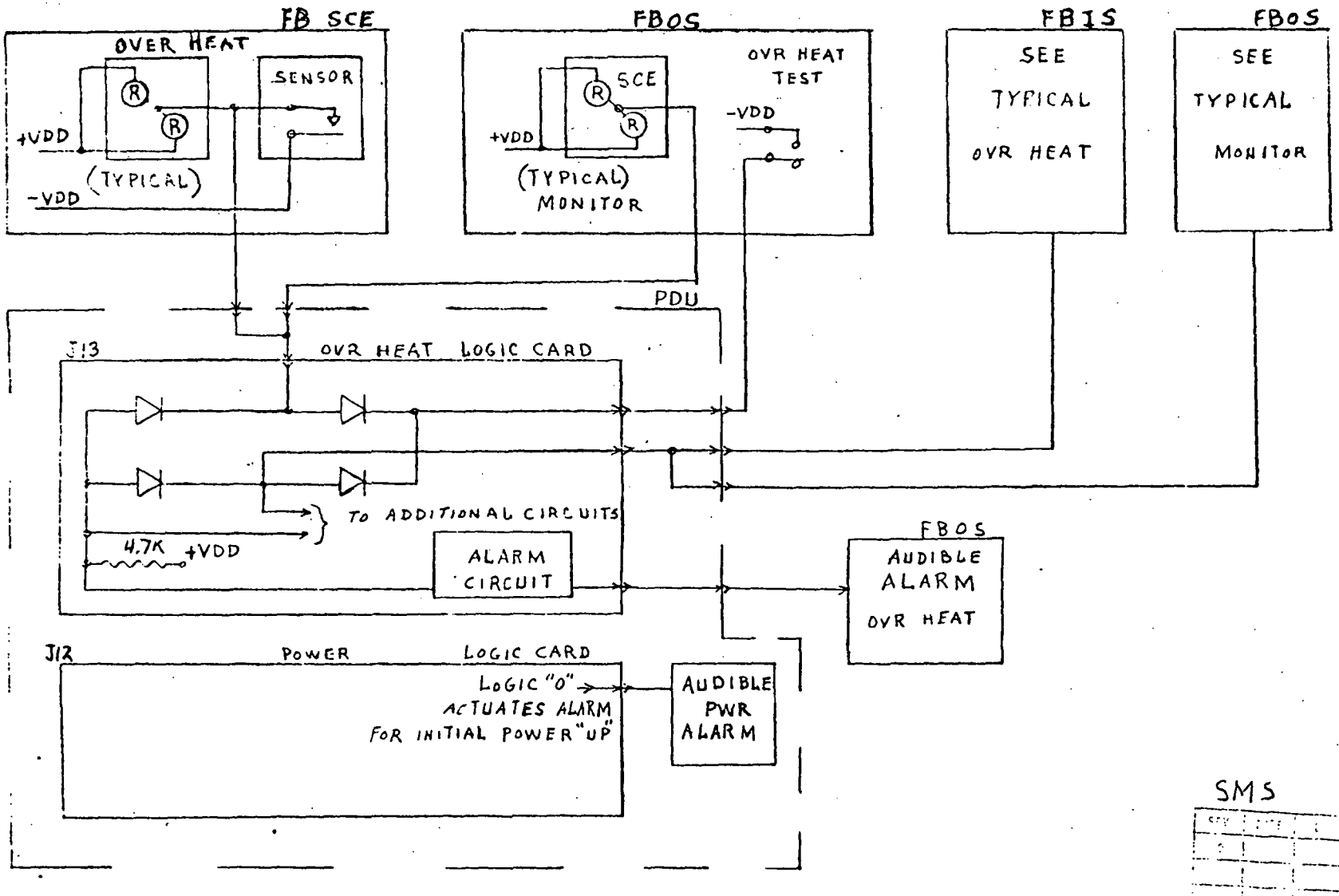
Action: SPD 2 - Inform NASA of EMI specifications used for SMS design.

Action: NASA 2 - Define whether a similar CEI documentation concept can be applied to the CPCEI's.

Singer will change Paragraph 4.1.1.2 of CEI to read: "Using visual inspection and voltmeter, verify that the correct power is supplied to various hardware items to ensure proper distribution prior to connecting the cables."

The Data Book was discussed without any comments.

NASA worte RID's N24-001P, N24-002), N24-003), included at Attachments 3. 4 and 5, respectively.



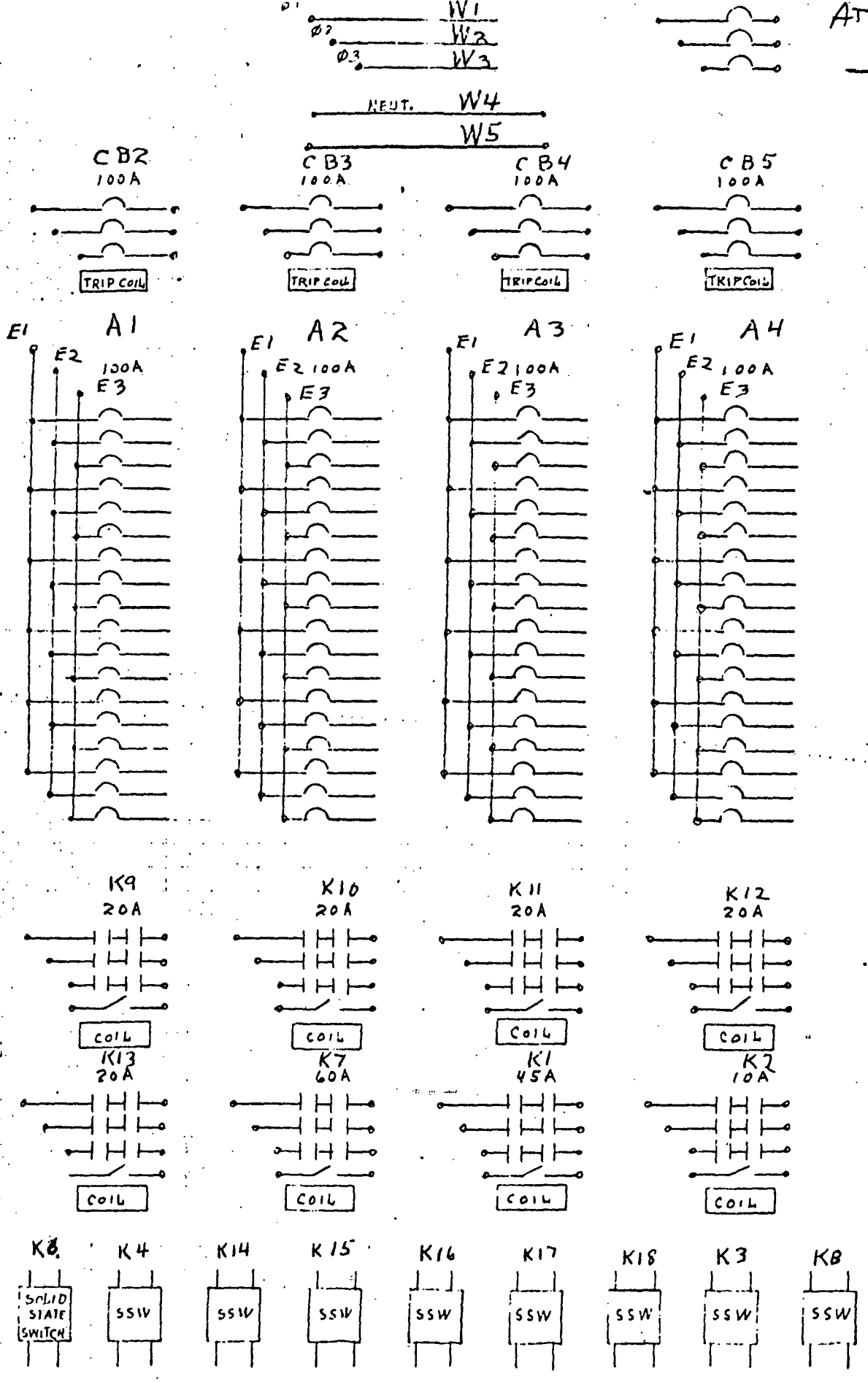
ATTACHMENT 1

SMS

TYPICAL SYSTEM

NO.6

ATTACHMENT 2



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ATTACHMENT 3

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
B. M. Gifford	NASA	4/20/76	N24-001P

TITLE
Crew Station Power Interlocks

2. DESCRIPTION OF PROBLEM:

Current design has the only Emergency C/S controls on the OBS console (total emergency power off only). This could result in FB shutdown due to a desire for quick motion turnoff. No emergency shutdown exists if OBS is not installed.

3. RECOMMENDATION:

Install permanent emergency shutdown switches in each crew station. Install an emergency hydraulic shutdown switch in MBCS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

Potential operating procedure problem. Intent to quickly shut off MB hydraulic system would also shut down Fixed Base.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
B M Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☒ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS: McElfresh

APPROVAL

TECHNICAL MANAGER	DATE
L. Blanky	4/21/76

7. CONTRACTOR'S IMPACT STATEMENT:

Cost impact probably over $2,000. No schedule impact.

K E Hastings 4/21/76 W C Brown 4/21/76

8. SCP ACTION:

Dies

APPROVAL

SCP CHAIRMAN	DATE
McElfresh	4/22/76

JSC Form 1570 (Mar 78) NASA-JSC

ATTACHMENT 4

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
B. M. Gifford	NASA	4/20/76	N24-002P

TITLE

Air Conditioning Emergency Off

2. DESCRIPTION OF PROBLEM:

Design does not include crew station air conditioning or Motion Base lift platform in Emergency Off System.

3. RECOMMENDATION:

Add Emergency Off contactors to air conditioning and platform lift power circuits.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

Air conditioning could blow smoke, fumes, etc., even after Emergency Off is initiated. Emergency situation could involve lift platform and continue after Emergency Power Off is initiated.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
B M Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Clarke	4/21/76

7. CONTRACTOR'S IMPACT STATEMENT:

Cost impact under $2000. No schedule impact.

E E Hanks 4/21/76 L C Brown 4/21/76

8. SCP ACTION:

APPROVAL

SCP CHAIRMAN	DATE

ATTACHMENT 5

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
B. M. Gifford	NASA	4/20/76	N24-003P

TITLE
PDV Trippable Breaker Load Assignments

2. DESCRIPTION OF PROBLEM:

Motion Base and Fixed Base loads are distributed among the four trippable breakers.

3. RECOMMENDATION:

Redistribute power loads such that where possible, Fixed Base and Motion Base units are powered through separate 100A trippable breakers.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

Tripping of a single 100A trippable breaker will disable both the Motion Base and Fixed Base simulations.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
B M Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Malay	4/21/76

7. CONTRACTOR'S IMPACT STATEMENT:

No cost or schedule impact.

E E Hall 4/30 W R Brown 4/21/76

8. SCP ACTION:

APPROVAL

SCP CHAIRMAN	DATE

INSTRUCTOR/OPERATOR
STATIONS

PRELIMINARY DESIGN
REVIEW MINUTES

APPROVAL: Tom Gerek
TOM GEREK
SECTION CHIEF

APPROVAL: Bert Gifford
BERT GIFFORD
TEAM LEADER

IS/OS PDR

Attendees

R. Follert	T. Gerek
D. Bailey	A. Ulangca
C. Mortimer	B. Gifford
L. Hershey	R. Myers
C. Olasky	R. Farley
B. Stach	

Tom Gerek began the presentation by stating the scope of the PDR. He then introduced R. Follert who presented the IS/OS console frame design.

Cliff Mire asked that SPD review the shelf framing to insure there are no sharp protrusions.

A revised IS panel layout and function list was presented (Attachment 1 and 1A). The revision was due to the fact that the TAC CRT's could not be mounted in 2 bays as originally anticipated.

NASA wrote RID N22-001P (Attachment 2).

SPD presented the OBS design approach and transmitted RID S22-001P (Attachment 3).

SPD presented the MBCS console for the OBS (same as OAS except for modifications to accept new CRT).

SPD stated, in response to NASA questions, that the FBCS OBS will block the payload station and portions of the aft center panels in the FBCS. NASA wrote RID N22-02P (Attachment 4).

SPD presented the FBCS & MBCS IS panel layout.

SPD stated that the visual select switch is not shown on the panel layout. This switch will be mounted on the same panel as the visual monitor.

NASA questioned the requirement for a freeze repeater on panel 3C when the control is located adjointly on panel 4C. SPD responded that this was OAS design.

NASA questioned the visual system status on panel 4C - it does not reflect the DIG system.

Action: SPD-1 - Define the visual system status.

Discussion ensued on the major equipment status on the OS. NASA questioned the "power on" light and requested SPD to evaluate the effectiveness of this light.

NASA wrote RID N22-007P (Attachment 5).

Discussion on the ISA panel was differed until discussion on the light pen approach.

NASA wrote RID on N22-003P, N22-004P, N22-005P - (Attachments 6, 7, & 8).

SPD presented the Graphic Display system configuration.

NASA questioned the EDR data that depicted the hardcopy capability as coming only from "system B'. SPD stated that the system B hardware preforms the hardcopy but via software control from system A & C.

SPD presented an alternate hardcopy technique which deletes the video tape recorder. RID S22-002P was generated (Attachment 9 & 9A).

Discussion was held on the Aydin Alphanumeric CRT system.

SPD stated that each A/N CRT does meet the HEW requirements. NASA asked if collectively do they meet the HEW requirement to which SPD stated this information was not available.

Action: SPD-2 - Provide NASA with the data for the Alphanumeric CRT radiation information that Aydin has on file.

C. Mortimer discussed an option for use of the shadow mask Conrac CRT in lieu of the proposed Aydin CRT.

NASA wrote RID N22-009P (Attachment 10).

SPD presented options to add an expanded keyboard (45 additional keys) and light pen (Attachment 11). If these options are purchased by NASA they would remove the ISA Switch and CRT selection switchlight matrix.

SPD wrote RID's S22-003P, S22-004P (Attachments 12 & 13).

SPD stated that the SMS color scheme will be the same as the present OAS scheme. NASA had no comments. NASA noted that there were no provisions for the SMS IOS back-up communications loop. NASA wrote RID N22-008P (Attachment 14).

At this time R. Meyers requested the addition of an Abort, Master Alarm and Record in progress status light at the Instructor Stations.

NASA wrote RID N22-006P (Attachment 15).

The CEI specification was reviewed with the following comments:

a) Para. 3.1.1.1 SPD to provide more detail on panels.

b) Para. 3.1.1.2 SPD to provide better definition of CRT system requirements.

c) Para. 3.1.1.2.3 Change the "right hand crew member" to left hand crew member".

d) Para. 3.1.1.4 Change "(3) for FBCSS" to "(6) for FBCSS".

e) Para. 3.2.1 Add SCE and computers to the interface requirements.

f) Update figures to the ones presented at PDR.

ATTACHMENT 1

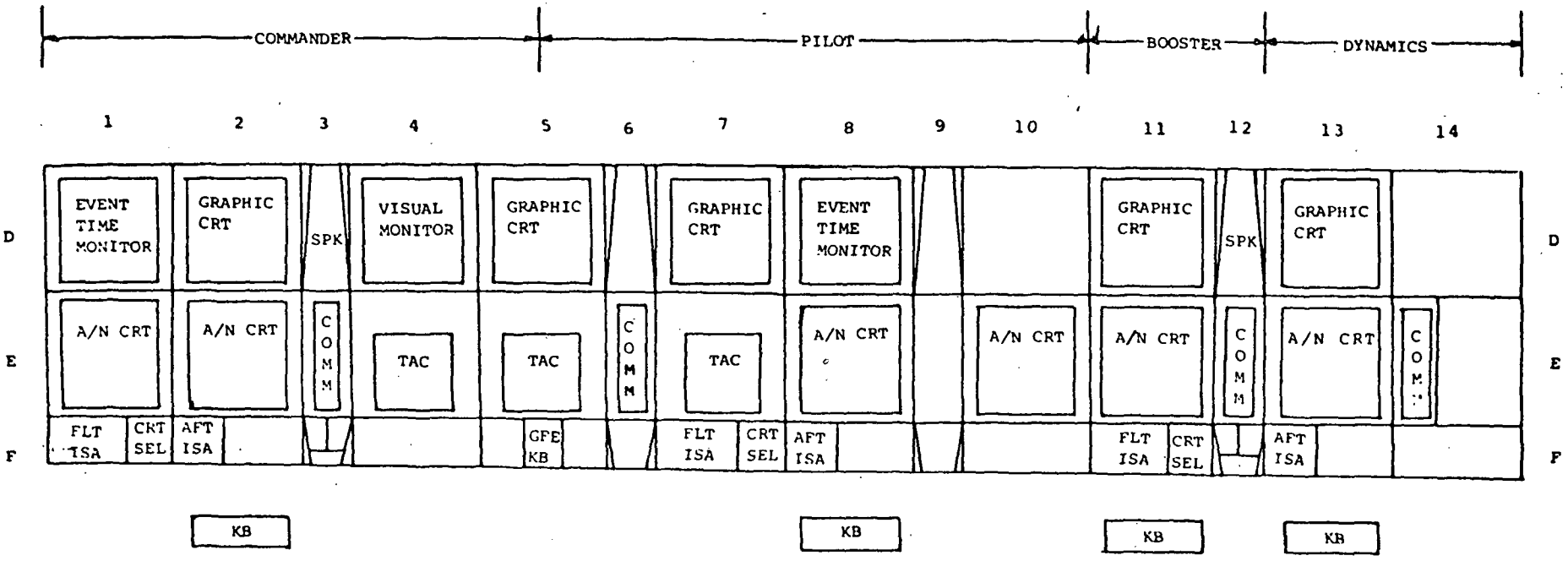


FIGURE 3.1-3 PANORAMIC VIEW OF THE MBIS CONSOLE

ATTACHMENT I

ATTACHMENT I

FBIS/MBIS/FBOS/MBOS/OBS FUNCTION LIST

TABLE OF CONTENTS

PANEL	MBIS
4D	63
4E	
4F	7, 49-55, 57-61
5D	
5E	
5F	
6D	
6E	
6F	
7D	
7E	
7F	1, 2, 6
8D	
8E	
8F	5
9D	
9E	
9F	
10D	
10E	
10F	
11D	
11E	
11F	1, 2, 6
12D	15, 16
12E	
12F	7-10, 62
13D	

PANEL	MBIS
13E	
13F	5
14D	
14E	
14F	

PANEL	FBOS
21A	
21B	
21C	8-14, 18-25, 54
22A	63
22B	15, 16, 17
22C	48, 49, 54, 55, 57, 58, 60, 61, 62
23A	
23B	
23C	1, 3, 6
24A	4, 63
24B	
24C	

PANEL	MBOS
21D	
21E	
21F	8, 9, 10, 11, 12, 13, 14, 18-47
22D	63
22E	15, 16, 17
22F	48-62
23D	
23E	

PANEL	MBOS
23F	6
24D	
24E	
24F	1, 3, 5

PANEL	OBS-FB
41A	
41B	7, 11, 12, 48-57, 62

LOCATION	Panels 1C, 1F, 7C, 7F, 11C, 11F, 23C and 23F
PANEL TITLE	FLT STA
NOMENCLATURE	(ISOMORPHIC SWITCH ARRAY - c.f. FIGURE 3.1-11)
COLOR	White
TYPE	Switches (65) - not illuminated
FUNCTION	Each of these switches represents a flight station panel, part of a panel, or a group of panels as defined by NASA.
COMMENTS	The switches are arranged to have a similar spatial relationship on the console panel as their corresponding counterparts in the cockpit have. Activation of a particular switch will result in a CRT display of the appropriate NASA-defined panel pages.

LOCATION — Panels 1C, 1F, 7C, 7F, 11C and 11F

PANEL TITLE — CRT SELECTION (FBIS AND MBIS)

NOMENCLATURE — EVENT TIME CMDR, GRAPH CRT CMDR, A/N CRT CMDR, A/N CRT CMDR, GRAPH CRT PILOT, GRAPH CRT PILOT, EVENT TIME PILOT, A/N CRT PILOT, A/N CRT PILOT, GRAPH CRT BOOST, GRAPH CRT DYNAM, EVENT TIME DYNAM**, A/N CRT BOOST & A/N CRT DYNAM.

COLOR — White

TYPE — Switches (14) - 3C, 7C and 12C - not illuminated
Switches (13) - 3F, 7F and 12F - not illuminated

FUNCTION — These switches allow the user to direct subsequent requests for displays and hard copies of the CRT's designated by the switches.

COMMENTS — These switches are found on the instructor stations.

These switches are used in conjunction with the ISA (FLT STA and AFT STA) to secure a display or a hard copy of the designated CRT. It is not necessary to redesignate (activate the switch corresponding to the appropriate CRT) the same CRT if it is to be used for sequential displays or hard copies.

The switches are arranged in a special relationship similar to that of the actual CRT's in the individual instructors' working areas.

**On FBIS only.

LOCATION	Panels 23C and 23F
PANEL TITLE	CRT SELECTION (FBOS AND MBOS)
NOMENCLATURE	GRAPH CRT CONTR, A/N CRT CONTR, GRAPH CRT COORD, AND A/N CRT COORD (c.f. FIGURE 3.1-16)
COLOR	White
TYPE	Switches (4) - not illuminated
FUNCTION	These switches allow the user to direct subsequent requests for displays and hard copies of the CRT's designated by the switches.
COMMENTS	These switches are found on the operator stations. These switches are used in conjunction with the ISA (FLT STA and AFT STA) to secure a display or a hard copy of the designated CRT. It is not necessary to redesignate (activate the switch corresponding to the appropriate CRT) the same CRT if it is to be used for sequential displays or hard copies. The switches are arranged in a spacial relationship similar to that of the actual CRT's in the individual operators' working areas.

LOCATION Panels 2C, 8C, 13C and 24C

PANEL TITLE AFT STA (FBIS AND FBOS)

(ISOMORPHIS SWITCH ARRAY, c.f., FIGURE 3.1-13)

NOMENCLATURE

COLOR White

TYPE Switches (39) - not illuminated

FUNCTION

COMMENTS These switches are found on the fixed base consoles only.

The switches are arranged to have a similar spacial relationship on the console panel as their corresponding counterparts in the cockpit have. Activation of a particular switch will result in a CRT display of the appropriate NASA-defined panel pages.

LOCATION Panels 2F, 8F, 13F and 24F

PANEL TITLE AFT STA (MBIS AND MBOS)

NOMENCLATURE (ISOMORPHIC SWITCH ARRAY, c.f. FIGURE 3.1-14)

COLOR White

TYPE Switches (21) - not illuminated

FUNCTION Each of these switches represent an Aft Station panel, part of a panel, or a group of panels as defined by NASA.

COMMENTS These switches are found on the motion base consoles only.

The switches are arranged to have a similar spacial relationship on the console panel as their corresponding counterparts in the cockpit have. Activation of a particular switch will result in a CRT display of the appropriate NASA-defined panel pages.

LOCATION	Panels 3C, 3F, 7C, 7F, 11C, 11F, 23C and 23F
PANEL TITLE	CRT SELECTION
NOMENCLATURE	HARD COPY
COLOR	White
TYPE	Switch (1)
FUNCTION	When tripped, this switch will produce a hard copy of the display on the designated CRT (last CRT selected).
COMMENTS	This switch is found on all CRT selection panels of both the instructor and operator stations. Used in conjunction with the ISA (FLT STA and AFT STA) a hard copy of the designated CRT is requested by tripping the hard copy switch. It is not necessary to redesignate the same CRT if it is to be used for sequential displays or hard copies.

LOCATION	Panels 3C, 3F, 4C, 4F, 12C, 12F, 31B and 41B
PANEL TITLE	FREEZE
NOMENCLATURE	FREEZE
COLOR	White
TYPE	Switchlight (1) - 3C, 3F, 11C, 11F, 31B and 41B. (FBIS, MBIS, FBOS, MBOS, AND OBS). Indicator light (1) - 4C and 4F (FBIS and MBIS)
FUNCTION	The switchlight will stop the simulator at any point when tripped. The indicator light will light when the simulator is in a freeze condition.
COMMENTS	The simulator will freeze automatically when predetermined simulator conditions have been exceeded. The parameters that have been exceeded will be displayed on the CRT.

LOCATION	Panels 3C, 3F, 12C, 12F, 21C and 21F
PANEL TITLE	LIGHTING
NOMENCLATURE	CONSOLE INT
COLOR	Matte black with white pointer
TYPE	Skirted control knob (1)
FUNCTION	This continuously variable control permits the instructors and operators to set the console lighting intensity at an appropriate level.
COMMENTS	

LOCATION	Panels 3C, 3F, 12C, 12F, 21C, and 21F
PANEL TITLE	LIGHTING
NOMENCLATURE	IND LAMP INT
COLOR	Matte black with white pointer
TYPE	Skirted Control Knobs
FUNCTION	This continuously variable control permits the instructors or operators to set the intensity of the indicator lights on the associated portion of the console.
COMMENTS	

LOCATION	Panels 3C, 3F, 12C, 12F, 21C and 21F
PANEL TITLE	LIGHTING
NOMENCLATURE	LAMP TEST LEFT and LAMP TEST RIGHT
COLOR	White
TYPE	Switchlights (2)
FUNCTION	The activation of either the lamp test left or lamp test right switchlight will illuminate all indicator lamps on that portion of the console.
COMMENTS	To avoid excessive power supply loading during lamp test, the IS and OS consoles are divided into sections for lamp test. Each section will contain an integral number of panels (i.e., no panels test from more than one location). Lamp power for IS and OS lighting will come from remotely programmable power supplies. Individual supplies will be provided for each of these sections. Each IO and OS light will have a dedicated relay as that lamp test will not affect cockpit operation.

LOCATION	Panels 21C, 21F and 41B
PANEL TITLE	AURAL CUE
NOMENCLATURE	AURAL VOLUME - (MIN-MAX)
COLOR	Matte black with white pointer
TYPE	Skirted Control Knob (1)
FUNCTION	This continuously variable control permits the operator to control the volume of the aural cue system.
COMMENTS	

LOCATION	Panels 21C, 21F and 41B
PANEL TITLE	AURAL CUE
NOMENCLATURE	AURAL ON
COLOR	White
TYPE	Switchlight (1)
FUNCTION	This switchlight turns the aural cue system on and off.
COMMENTS	

LOCATION	Panels 21C and 21F
PANEL TITLE	AURAL CUE
NOMENCLATURE	WARN VOLUME - (MIN-MAX)
COLOR	Matte black with white pointer
TYPE	Skirted Control Knob (1)
FUNCTION	This continuously variable control permits the operators to control the volume of the caution and warning system.
COMMENTS	

LOCATION Panels 21C and 21F

PANEL TITLE AURAL CUE

NOMENCLATURE WARN ON

COLOR White

TYPE Switchlight (1)

FUNCTION This switchlight turns the caution and warning system on and off.

COMMENTS

LOCATION	Panels 3A, 3D, 12A, 12D, 22B and 22E
PANEL TITLE	(SPEAKER)
NOMENCLATURE	SPEAKER VOLUME (MIN-MAX)
COLOR	Matte black with white pointer
TYPE	Skirted Control Knob (1)
FUNCTION	This continuously variable control permits the instructors and operators to set the intensity of sound through the speakers at appropriate levels.
COMMENTS	

LOCATION Panels 3A, 3D, 12A, 12D, 22B and 22E

PANEL TITLE (SPEAKER)

NOMENCLATURE SPEAKER ON

COLOR White

TYPE Switchlight (1)

FUNCTION This control turns the adjacent speaker on and off.

COMMENTS

LOCATION Panels 22B and 22E

PANEL TITLE (SPEAKER)

NOMENCLATURE AURAL CUE

COLOR White

TYPE Switchlight (1)

FUNCTION This switch, when activated, sends aural cue sound through the speakers at the IS and OS provided that the speakers are turned on.

COMMENTS

LOCATION	Panels 21C and 21F
PANEL TITLE	VISUAL SYSTEM STATUS
NOMENCLATURE	DC POWER ON - VIS POWER CAB, GANTRY CONTRL CAB, CAMERA CAB, XMSN CAB, DISPL POWER CAB #1, AND DISPL POWER CAB #2.
COLOR	White
TYPE	Indicator lights (6)
FUNCTION	When illuminated, these lights indicate that DC power is on at the designated visual system cabinets.
COMMENTS	

LOCATION	Panels 21C and 21F
PANEL TITLE	VISUAL SYSTEM STATUS
NOMENCLATURE	OVERHEAT - VIS POWER CAB, GANTRY CONTRL CAB, CAMERA CAB, XMSN CAB, DISPL POWER CAB #1, DISPL POWER CAB #2, MODE ILLUM, AND 15 TBD ON FBOS AND 5 TBD ON MBOS.
COLOR	Yellow
TYPE	Indicator lights (22) - 21C (FBOS) Indicator lights (12) - 21F (MBOS)
FUNCTION	When illuminated, these lights indicate an overheat condition in the designated visual system cabinet. These lights will remain lighted until the overheat condition is corrected.
COMMENTS	When an overheat occurs, an alarm bell will sound (c.f. BELL OFF - NEXT PAGE)

LOCATION Panels 21C and 21F

PANEL TITLE VISUAL SYSTEM STATUS

NOMENCLATURE BELL OFF

COLOR White

TYPE Switchlight (1)

FUNCTION This switchlight permits the operator to turn off the overheat alarm bell. Once activated, this switchlight will remain lighted until the overheat condition is corrected.

COMMENTS

LOCATION	Panels 21C and 21F
PANEL TITLE	VISUAL SYSTEM STATUS
NOMENCLATURE	MAINT SEL - GANTRY CONTRL CAB, CAMERA CAB, and XMSN CAB
COLOR	White
TYPE	Indicator lights (3)
FUNCTION	When illuminated, these indicator lights denote the maintenance mode has been selected at the designated cabinet.
COMMENTS	

LOCATION	Panels 21C and 21F
PANEL TITLE	VISUAL SYSTEM STATUS
NOMENCLATURE	GANTRY STATUS - OVERSPEED, GANTRY IN LIMIT and PROBE PROTECT
COLOR	Yellow
TYPE	Indicator lights (3)
FUNCTION	When illuminated, these lights provide a warning of gantry status conditions.
COMMENTS	

LOCATION Panels 21C and 21F

PANEL TITLE SIMULATOR STATUS

NOMENCLATURE BELL OFF

COLOR White

TYPE Switchlight (1)

FUNCTION This switchlight permits the operator to turn off the overheat alarm bell. Once activated, this switchlight will remain lighted until the overheat condition is corrected.

COMMENTS

LOCATION	Panels 21C and 21F
PANEL TITLE	SIMULATOR STATUS
NOMENCLATURE	CS BLOWRS OFF, and ONE TBD
COLOR	Yellow
TYPE	Indicators Lights (2)
FUNCTION	When illuminated, these lights indicate that the crew station and instructor station blowers associated with the MCDS system are not operating.
COMMENTS	

LOCATION	Panels 21C and 21F
PANEL TITLE	SIMULATOR STATUS
NOMENCLATURE	OVERHEAT - OPER STA, INSTR STA, CREW STA, PDU, ICU and MOTION ELECTR**
COLOR	Yellow
TYPE	Indicator Lights (6)
FUNCTION	When illuminated, these lights indicate an overheat condition in the designated cabinet. These lights will remain lighted until the overheat condition is corrected.
COMMENTS	When an overheat occurs, an alarm bell will sound.

**MBOS only - TBD on FBOS

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	AUTO/MAN
COLOR	White
TYPE	Indicator Light (Split Screen)
FUNCTION	Indicates that the motion system is in either the manual or the automatical control mode.
COMMENTS	

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE DC VOLT SENSE

COLOR Yellow

TYPE Indicator Light (1)

FUNCTION When illuminated, indicates that the DC power supply is out of tolerance.

COMMENTS

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	CYL TRACK ERROR
COLOR	Yellow
TYPE	Indicator Light (1)
FUNCTION	When illuminated, indicates that servo error is out of tolerance.
COMMENTS	

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	MOTION EXCURS LIMITS
COLOR	Yellow
TYPE	Indicator Light (1)
FUNCTION	Illuminates whenever any actuator approaches within 1/2" of its travel limit.
COMMENTS	

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	SETTLD POS
COLOR	Yellow
TYPE	Indicator Light (1)
FUNCTION	Indicates that the platform is not in the settled position as commanded.
COMMENTS	

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE ON/OFF

COLOR White

TYPE Indicator Light (Split Screen) (1)

FUNCTION *This light idicates that motion system power is on or off.*

COMMENTS

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	AC PWR/DC PWR
COLOR	White
TYPE	Indicator Light (Split Screen) (1)
FUNCTION	This light indicates that AC and DC power have been turned on.
COMMENTS	

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	SIGNAL XFR
COLOR	Yellow
TYPE	Indicator Light (1)
FUNCTION	This light illuminates when signal transfer is not occurring properly.
COMMENTS	

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE PLATFORM - ENABLE/DN CMD

COLOR

TYPE Indicator Light (1)

FUNCTION ENABLE indicates that the motion base is settled and that the lift platform can be operated.

DN CMD indicates that the lift platform is being commanded to the down position by the motion system.

COMMENTS

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	PERIPHERAL EQUIPMENT - AUTO/MANUAL
COLOR	White
TYPE	Indicator Light (Split Screen) (1)
FUNCTION	Indicates that the peripheral equipment is in the automatic or manual mode.
COMMENTS	

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	CMPTR PRGRM CHECKS
COLOR	Yellow
TYPE	Indicator Light (1)
FUNCTION	This light illuminates when the computer program check is not satisfactory.
COMMENTS	

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	PERIPHERAL EQUIP CMPTR LINKAGE CHECKS
COLOR	Yellow
TYPE	Indicator Light (1)
FUNCTION	This light illuminates when the computer check of the linkage is not satisfactory.
COMMENTS	

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE MANUAL CONTROL -
PUMP START/STOP

COLOR White

TYPE Indicator Light (Split Screen) (1)

FUNCTION This light indicates the start or stop condition of the pump in the manual control mode.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE MANUAL CONTROL
ERECT/SETTLE

COLOR White

TYPE Indicator (Split Screen) (1)

FUNCTION This light will illuminate when in the manual control mode the erect or settled condition of the motion base is realized.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE MANUAL CONTROL - SYSTEM CONTROL
MAINT and PERIPH

COLOR White

TYPE Indicator Lights (2)

FUNCTION These lights indicate the position of the key-switch on the motion cabinet.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE PUMP CONTROL
SIM AUTO, SIM MAN, and MAINT PANEL

COLOR White

TYPE Indicator Lights (3)

FUNCTION These lights indicate the pump control mode.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE PUMP -
FILTER

COLOR Yellow

TYPE Indicator Light (1)

FUNCTION When illuminated, this light indicates the need for filter maintenance.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE PUMP -
MOTION PUMP 1 and MOTION PUMP 2

COLOR White

TYPE Indicator Lights (2)

FUNCTION Illumination of either of these lights indicates that the corresponding pumps have been turned on.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE PUMP -
HYDR FLUID LEVEL

COLOR Yellow

TYPE Indicator Light (1)

FUNCTION Illumination of this light indicates that the hydraulic fluid has dropped below its normal level.

COMMENTS

LOCATION Panel 21F

PANEL TITLE MOTION SYSTEM STATUS

NOMENCLATURE PUMP -
HYDR FLUID TEMP

COLOR Yellow

TYPE Indicator Light

FUNCTION Illumination of this light indicates that the hydraulic fluid temperature is in excess of 150° F.

COMMENTS

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	MOTION BASE HYDRAULICS - 1 FLTR/4 FLTR, 2 FLTR/5 FLTR, 3 FLTR/6FLTR, and 7 FLTR
COLOR	Yellow
TYPE	Indicator Lights (4) (Split Screens)
FUNCTION	Illumination of any of these lights indicates the corresponding filter needs maintenance.
COMMENTS	

LOCATION	Panel 21F
PANEL TITLE	MOTION SYSTEM STATUS
NOMENCLATURE	MOTION BASE HYDRAULICS MOTION MNFOLD PRESS
COLOR	Yellow
TYPE	Indicator Light
FUNCTION	Illumination of this light indicates loss of pressure at motion distribution manifold.
COMMENTS	

LOCATION	Panels 22C, 22F and 41B
PANEL TITLE	SIM MODE
NOMENCLATURE	OBS CONT
COLOR	White
TYPE	Switch (1) - 22C and 22F Indicator Light (1) - 31B and 41B
FUNCTION	Activation of the OBS CONT switchlight by either operator transfers control from that operator's console to his respective in-cockpit observer's console. When an observer has control, the OBS CONT indicator light on the observer's station and the switchlight on the operator's station will be illuminated.
COMMENTS	

LOCATION — Panels 4C, 4F, 22C, 22F and 41B

PANEL TITLE — SIM MODE (FBOS, MBOS and OBS)
SIM MODE STATUS (FBIS and MBIS)

NOMENCLATURE — IS ACTIVE

COLOR — White

TYPE — Indicator Light (1) - 4C, 4F and 41B (FBIS, MBIS and OBS)
Switchlight (1) - 22C and 22F (FBOS and MBOS)

FUNCTION — The operators' switchlights, when activated, permit the instructor to make command inputs in lieu of the crew station. These command inputs are entered via the CRT and keyboard for both continuous control and switch positions. Displays will be active at both the instructor and crew stations during this mode of operation. In addition, the instructor's "in-cockpit keyset" (Panel 4C - FBIS, Panel 5F - MBIS), is active during this mode.

COMMENTS

LOCATION	Panels 4F, 22F and 41B
PANEL TITLE	MOTION SYSTEM (MBOS and OBS) MOTION SYSTEM STATUS (MBIS)
NOMENCLATURE	MOTION ON
COLOR	White
TYPE	Indicator Light (1) - 4F (MBIS) Switchlight (1) - 22F and 41B (OBS-MB)
FUNCTION	This switchlight activates the motion system provided the interlocks are satisfied. The motion platform will erect to its neutral position prior to responding to flight control inputs. The indicator light at the MBIS indicates that the motion system has been activated.
COMMENTS	The switchlight will be provided with clear, spring-loaded plastic covers to protect this control from inadvertant actuation.

LOCATION	Panels 4F, 22F and 41B
PANEL TITLE	MOTION SYSTEM (OS and OBS) MOTION SYSTEM STATUS (IS)
NOMENCLATURE	MOTION OFF
COLOR	White
TYPE	Indicator Light (1) - 4F (MBIS) Switchlight (1) - 22F and 41B (MBOS and OBS-MB)
FUNCTION	This switchlight deactivates the motion platform. The motion platform returns to the neutral position prior to returning to the completely settled position. The indicator light at the MBIS indicates that the motion system has been deactivated.
COMMENTS	The switchlight will be provided with clear, spring-loaded, plastic covers to protect this control from inadvertent actuation.

LOCATION	Panels 4F, 22F and 41B
PANEL TITLE	MOTION SYSTEM (MBOS and OBS-MB) MOTION SYSTEM STATUS (MBIS)
NOMENCLATURE	EXT PITCH
COLOR	White
TYPE	Indicator Light (1) - 4F (MBIS) Switchlight (1) - 22F and 41B (MBOS and OBS-MB)
FUNCTION	The switchlights permit rotation of the cockpit to the launch position. The status of the extended pitch switch is repeated at the MBIS.
COMMENTS	This switchlight will be provided with a clear, spring-loaded plastic cover to protect from inadvertent actuation.

LOCATION Panels 4F, 22F and 41B

PANEL TITLE MOTION SYSTEM (MBOS and OBS-MB)
MOTION SYSTEM STATUS (MBIS)

NOMENCLATURE INTERLOCKS -
THRML CUTOUT, RAMP, DOOR AND MAINT.

COLOR Yellow

TYPE Indicator Lights (4) - MBIS

FUNCTION These indicator lights illuminate to indicate that the corresponding motion interlock is open. The motion platform will not be operable until the interlock is satisfied.

COMMENTS

LOCATION	Panels 4C, 4F, 22C, 22F and 41B
PANEL TITLE	VISUAL SYSTEM
NOMENCLATURE	VISUAL AVAILABLE
COLOR	White
TYPE	Indicator Light (1)
FUNCTION	This indicator light illuminates when visual system power is on and indicates that the visual system is ready to operate.
COMMENTS	

LOCATION — Panels 4C, 4F, 22C, 22F and 41B

PANEL TITLE — VISUAL SYSTEM (FBOS, MBOS, and OBS-MB)
VISUAL SYSTEM STATUS (IS) - (FBIS and MBIS)

NOMENCLATURE — OPER/IN RESET

COLOR — White

TYPE — Indicator Light (1) (Split Screen) - 4C and 4F (FBIS and MBIS)
Switchlight (1) (Split Screen) - 22C, 22F and 41B (FBOS, MBOS and OBS-MB)

FUNCTION — This switchlight activates the visual system and slews the probe to the commanded position. The lower half of this control (IN RST) remains illuminated until reset is completed. The indicator lights at the FBIS and MBIS repeats the status of the FBOS and MBOS, or the OBS-FB and OBS-MB switchlights.

COMMENTS

LOCATION	Panels 22C, 22F and 41B
PANEL TITLE	SIMULATOR CONTROL
NOMENCLATURE	RUN
COLOR	White
TYPE	Switchlight (1)
FUNCTION	This switchlight causes the simulator to commence operation from the point at which it was frozen.
COMMENTS	

LOCATION Panels 4C, 4F, 22C, 22F and 41B

PANEL TITLE SIMULATOR CONTROL (FBOS, MBOS and OBS-MB)
SIMULATOR CONTROL STATUS (FBIS and MBIS)

NOMENCLATURE RESET IN PROG.

COLOR White

TYPE Indicator Light (1)

FUNCTION This indicator light illuminates while the simulator is in the process of resetting. Reset for initial conditions or playback is initiated via the CRT and keyboard. When the light is extinguished, the simulator is ready to run again.

COMMENTS

LOCATION Panels 4C, 4F, 22C and 22F

PANEL TITLE MAJOR EQUIP STATUS

NOMENCLATURE VIS AVAILABLE

COLOR White

TYPE Indicator Light (1)

FUNCTION This indicator light is illuminated when the visual system is on and indicates that the visual system is ready to operate.

COMMENTS

LOCATION	Panels 4F and 22F
PANEL TITLE	MAJOR EQUIP STATUS
NOMENCLATURE	MOTION AVAIL
COLOR	White
TYPE	Indicator Light (1)
FUNCTION	When illuminated, this light indicates that the motion system is ready for operation.
COMMENTS	

LOCATION	Panels 4C, 4F, 22C and 22F
PANEL TITLE	MAJOR EQUIP STATUS
NOMENCLATURE	LINKAGE
COLOR	White
TYPE	Indicator Light (1)
FUNCTION	When illuminated, this indicates that the computer linkage is ready for operation.
COMMENTS	

LOCATION	Panels 4C, 4F, 22C and 22F
PANEL TITLE	MAJOR EQUIP STATUS
NOMENCLATURE	SIM POWER ON
COLOR	White
TYPE	Indicator Light (1)
FUNCTION	This light illuminates when simulator power has been turned on at the main power cabinet.
COMMENTS	

LOCATION	Panels 3C, 3F, 12C, 12F, 22C, 22F, 31B and 41B
PANEL TITLE	MASTER POWER CONTROL
NOMENCLATURE	EMER STOP
COLOR	Red
TYPE	Switchlight (1)
FUNCTION	Activation of this switchlight will turn off simulator power.
COMMENTS	Barriers and a clear, spring-loaded, plastic cover will be provided to protect this control from inadvertent activation.

LOCATION	Panels 4A, 4D, 11A, 22A, 22D and 23A
PANEL TITLE	VISUAL SYSTEM MONITOR
NOMENCLATURE	SCENE SELECT - LEFT/CTR/RIGHT
COLOR	Matte Black with White Pointer
TYPE	3 Position Rotary Control Knob (1)
FUNCTION	This selector switch permits the instructor and operator to display the left, center or right visual system display from the overall window group selected (group selection via CRT and keyboard.)
COMMENTS	

ATTACHMENT 2

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
R. L. MYERS	JSC	4/21/76	N22-001P

TITLE:
ADDITION OF MAJOR FUNCTION SWITCH TO FBIS & MBIS

2. DESCRIPTION OF PROBLEM:

CURRENTLY THE FBIS & MBIS ARE PROVIDED WITH AN ~~MDCS~~ MCDS KEYBOARD. THERE IS NO MAJOR FUNCTION SWITCH TO ALLOW THE INSTRUCTOR TO SELECT THE SOFTWARE (GNC, SM, OR PL) INTO WHICH THE INSTRUCTOR WILL MAKE HIS KEYBOARD ENTRIES.

3. RECOMMENDATION:

PROVIDE A MAJOR FUNCTION SWITCH AT EACH INSTRUCTOR STATION ADJACENT TO EACH MDCS KEYBOARD.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

USE OF KEYBOARD WILL BE SEVERLY IMPACTED BECAUSE THE INSTRUCTOR WILL HAVE TO GO UP INTO THE CREW STATION TO PROPERLY CONFIGURE THE MAJOR FUNCTION SWITCH.

5. CONCURRENCE

AREA MANAGER	TEAM LEADER
B M Gafford	B M Gafford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Bladey	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO SCHEDULE IMPACT - COST LESS THAN $2000.

L C Brown 4/22/76

8. SCP ACTION:

ST

APPROVAL

M C Cafferty	4/22/76

JSC Form 1276 (Rev 7-73) NASA-JSC

ATTACHMENT 3

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK	SPD	4/20/76	S22-001P

TITLE:
OBSERVER CRT

2. DESCRIPTION OF PROBLEM:

DUE TO REQUIREMENT TO HAVE A RELOCATABLE CRT IN CREW STATIONS, A SMALL SIZE CRT IS REQUIRED. PRESENT RUGGIZED COLOR MONITORS ARE TOO LARGE FOR THIS APPLICATION.

3. RECOMMENDATION:

USE A MONOCHROME SMALL PORTABLE CRT RUGGIZED TO WITHSTAND MBCS FORCES.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

CRT FOR THE OBSERVERS CONSOLE WILL BE TOO LARGE TO BE EASILY RELOCATABLE FROM FBCS & MBCS.

5. CONCURRENCE

PBS MANAGER	T. AV LEAD
B.M. Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENT:

APPROVAL

TECHNICAL MANAGER	DATE
L. Clarke	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO COST OR SCHEDULE IMPACT.

L.C. Brown 4/22/76

8. SCP ACTION:

5R

APPROVAL

NASA CHAIRMAN	DATE
M.C. Coffey	4/22/76

ATTACHMENT 4

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
C. OLASKY	NASA	4/21/76	N22-002P

TITLE: DELETION OF INCOCKPIT IOS FOR FBCSS

2. DESCRIPTION OF PROBLEM:

THE FIXTURE FOR HOUSING THE INCOCKPIT CRT WILL BLOCK ACCESS TO PORTIONS OF PSS AND OS C&D IN THE FBCS. DIMENSIONS OF FIXTURE (PEDESTAL MOUNT), REFERENCE FIG. 3.1-8 OF EDR, WOULD MAKE INSERTION/REMOVAL DIFFICULT THRU THE FBCS INGRESS/EGRESS HATCHES.

3. RECOMMENDATION:

DELETE REQUIREMENT FOR INCOCKPIT IOS FOR FBCSS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

UNIT COULD ONLY BE INSTALLED FOR CMD AND PILOT PART TASK TRAINING (FORWARD C/S ONLY) FOR OFT MISSION 3 AND SUBS.

5. CONCURRENCE

ABS MANAGER	TEAM LEADER
B.M Gafford	B.M. Gafford

6. DISPOSITION:

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
C. Olasky	4/22/76

7. CONTRACTOR IMPACT STATEMENT:

NO SCHEDULE IMPACT. COST REDUCTION UNDETERMINED AMOUNT AT THIS TIME. EFFECTIVENESS OF OBS IN THE FBCS FOR TEST DEBUG PURPOSE IS MINIMAL DUE TO ABOVE BLOCKAGE OF AFT PANELS AND SPACE LIMITATIONS.

W Brown 4-20-76

8. SCP ACTION:

5R

APPROVAL

CCB CHAIRMAN	DATE
McCafferty	4/22/76

JSC Form 1070 (Mar 76) NASA-JSC

ATTACHMENT 5

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	AT	PD
B. M. GIFFORD	NASA	4/21/76	N22-007P

TITLE
POWER ON LIGHT DELETION

2. DESCRIPTION OF PROBLEM:

POWER AVAILABLE INDICATOR ON EACH IS AND OS SHOWS ONLY THAT PRIMARY POWER IS TURNED ON IN THE POWER CABINET. CHANGE TO CHECK OPERATION OF UNITS SUCH AS SID AND 8-32's WOULD BE DIFFICULT AND COSTLY.

3. RECOMMENDATION:

DELETE POWER-ON INDICATOR, PROVIDES NO USEFUL INFORMATION.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

POWER-ON LIGHT COULD PROVIDE ERRONEOUS ASSURANCE THAT EQUIPMENT IS FUNCTIONING.

5. CONCURRENCE

SUBSYSTEM MANAGER	TEAM LEADER
B M Gifford	B M Gifford

6. DISPOSITION

- [ ] Approved
- [ ] Disapproved
- [ ] Withdrawn
- [ ] Tech. Direction
- [X] Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Malkey	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO COST OR SCHEDULE IMPACT.

L. Brown 4/22/76

8. SCP ACTION:

Cat 1

APPROVAL

DIRECTOR, [illegible]	DATE
M Chaffee	4/22/76

JSC Form 1570 (Mar 76)

ATTACHMENT 6

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
R. L. MYERS	JSC	4/21/76	N22-003P

TITLE:
MBIS COMM PANEL ON PANEL 14E

2. DESCRIPTION OF PROBLEM:

ARRANGEMENT OF COMM PANELS DOES NOT ALLOW FOR MAXIMUM SHARING OF A/N CRT'S WHEN CONSOLE IS FULLY MANNED. ALSO, DECREASES EXPANSION CAPABILITY.

3. RECOMMENDATION:

MOVE COMM PANEL FROM 14E TO 9E ON MBIS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

OPTIMUM USE OF CONSOLE CAPABILITIES WILL NOT BE REALIZED WHEN CONSOLE IS FULLY MANNED. UNNECESSARY DECREASE IN EXPANSION CAPABILITY.

5. CONCURRENCE

SE MANAGER	TEAM LEADER
B M Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. O'Leary	4/22/76

7. CONTRACT (CR IMPACT STATEMENT):
NO COST OR SCHEDULE IMPACT.

L B Brown 4/22/76

8. SCP ACTION:

57

APPROVAL

CCB CHAIRMAN	DATE
McCafferty	4/22/76

JSC Form 1217 (Rev 7/2)

ATTACHMENT 7

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
R. L. MYERS	JSC	4/21/76	N22-004P

TITLE
CRT SELECTION FOR HARDCOPY AND CREW STATION DISPLAYS

2. DESCRIPTION OF PROBLEM
THE CRT SELECTION PANEL UTILIZES NAMES SUCH AS "A/N CRT COMMANDER" AND "EVENT TIME PILOT" TO INDICATE WHICH CRT THAT PANEL DISPLAYS WILL BE ROUTED TO OR WHICH CRT'S WILL BE HARDCOPIED.

3. RECOMMENDATION
SEQUENTIALLY NUMBER THE CRT'S AND PUT DECALS WITH THE NUMBERS ON THEM ADJACENT TO THE CRT'S. USE THE SAME NUMBERS ON THE CRT SELECTION PANELS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED
DIFFICULT OR IMPOSSIBLE TO REMEMBER THE VERBAL DESIGNATION FOR ALL CRT'S. THIS IS A GREATER PROBLEM THAN IT APPEARS TO BE AT FIRST GLANCE SINCE CRT UTILIZATION ON THE IS WILL CHANGE FOR DIFFERENT MISSION PHASES.

5. CONCURRENCE

SMS MANAGER	TECHNICAL
B M Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Implementation Plan

COMMENTS:

APPROVAL

TECHNICAL MANAGER	
L. Mackey	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT
NO COST OR SCHEDULE IMPACT.

W Braun 4/20/76

8. SCP ACTION

57

APPROVED

M McClafferty 4/22/76

NASA Form 1070 (Mar 73)

ATTACHMENT 8

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
R. L. MYERS	JSC	4/21/76	N22-005P

TITLE: FBIS PANELS 13a, 13b, 14a and 14b CRT ALLOCATION

2. RATIONALE FOR CHANGE:

THE PLACEMENT OF THE HARDWARE ON PANELS 13a AND 14a, AND 13a AND 146 HAS BEEN REVERSED SINCE THE IOS CONCEPTS MEETING DURING FACT FINDING.

3. RECOMMENDATION:

EXCHANGE GRAPHIC CRT ON PANEL 13a AND A/N CRT ON PANEL 14a.
EXCHANGE A/N CRT ON PANEL 14b AND DU ON PANEL 14b.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

PROPOSED LAYOUT IS NOT COMPATIBLE WITH PLANNED CONSOLE OPERATIONS.

5. CONCURRENCE

ORIGINATOR	TASK LEADER
B M Gaffard	B M Gaffard

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Mosley	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO COST OR SCHEDULE IMPACT.

L L Brown 4/22/76

8. SCP ACTION:

5T

APPROVAL

SCP CHAIRMAN	
M C Griffith	4/22/76

JSC Form 1570 (Mar 75)

ATTACHMENT 9

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK	SPD	4/21/76	S22-002P

TITLE
GRAPHIC HARD COPY

2. DESCRIPTION OF PROBLEM:

THE PROPOSED GRAPHIC HARD COPY IN PDR DOCUMENTATION WAS DETERMINED TO BE DEFICIENT IN QUALITY.

3. RECOMMENDATION:

USE A HI-RESOLUTION HARD COPY WHICH ELIMATES THE NEED FOR TV MONITOR AND VIDEO RECORDER AND CHANGE TV CAMERA FROM A 525 LINE SYSTEM TO A 1029 LINE SYSTEM.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

THE PRESENTLY PROPOSED HARD COPY SYSTEM WILL BE OF POOR QUALITY.

5. CONCURRENCE

OFFICE MANAGER	TECHNICAL AREA
B M Gulfad	B M Gulfad

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	
L. Clarke	4/22/76

7. CONTRACTUAL IMPACT STATEMENT:

COST SAVINGS IF NEW APPROACH IS APPROVED.

L Brown 4/22/76

8. SCP ACTION:

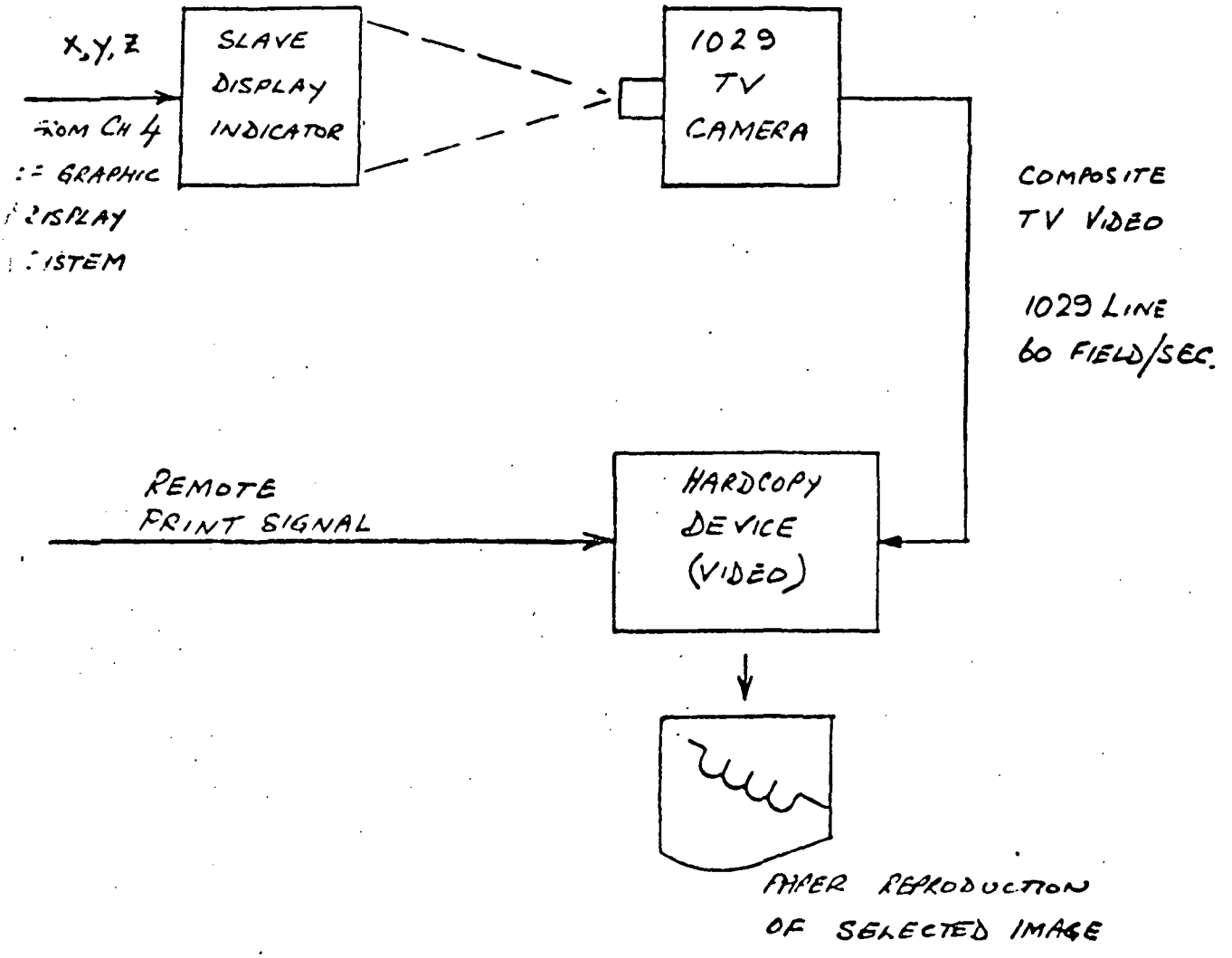
5R

APPROVAL

SCP CHAIRMAN	
MC Caffrey	4/22/76

JSC Form 1870 (Mar 75)

HI-RESOLUTION HARDCOPY



ITEM	IMAGE RECORDING SYSTEM	DISPLAY SNAPSHOT SYSTEM
SYSTEM COMPONENTS	SLAVE CRT, TV CAMERA, TV MONITOR VIDEO RECORDER, VIDEO HARDCOPY DEVICE	SLAVE CRT, TV CAMERA, VIDEO HARDCOPY DEVICE
REMOTE CONTROL SIGNALS	VIDEO RECORDER ONLY	HARDCOPY DEVICE
CONVERSION PROCESS	X Y Z TO TV VIDEO TV CAMERA USED FOR CONVERSION	X Y Z TO TV VIDEO TV CAMERA USED FOR CONVERSION
TV STANDARD	525 LINES 2:1 INTERLACE 25 FRAMES/SECOND 60 FIELDS/SECOND	1029 LINES 2:1 INTERLACE 25 FRAMES/SEC 60 FIELDS/SECOND
LIMITING RESOLUTION 12" ASCRE	VIDEO RECORDER (5 MHz) 400 HORIZONTAL 350 VERTICAL	HARDCOPY DEVICE (29 MHz) 840 HORIZONTAL 630 VERTICAL
REQUIRED CHARACTER SIZE (ASPECT H/W = 3/2 K=.7	.34H x .22W (H=7 PIXEL) (IDEAL) .24H x .15W (H=5 PIXEL) (MARGINAL)	.19H x .11W (H=7 PIXEL) (IDEAL) .14H x .10W (H=5.6 PIXEL) (DESIRED)
PICTURE QUALITY	POOR (EVALUATED)	GOOD (PREDICTED)
HARDCOPY AVAILABLE	AT END OF MISSION	CONCURRENT WITH MISSION AT 8 SEC. INTERVALS
MEANS OF GENERATING COPY	MANUAL OPERATION PER COPY	AUTOMATIC
IMAGE STORAGE METHOD	CONTINUOUS RECORDING OF INCIDENT - FOLLOWED BY PRINTING OF A STATIC 8 SEC INTERVAL	STATIC SNAPSHOTS - CAPTURE TIME < .5 SEC.
HARDCOPY MEDIA	VIDEO TAPE & PAPER	PAPER
MEANS OF INITIATING IMAGE CAPTURE	SELECTED DISPLAY IMAGE RELAYED TO RECORDING CRT. VTR ACTIVATED FOR REQUIRED INTERVAL. OPERATION REPEATED FOR EACH SELECTED INCIDENT.	SELECTED DISPLAY IMAGE CAPTURED TO FIFO DISC FILE. CONTROL SOFTWARE SPOOLS IMAGES TO COPY DEVICE AT 8 SEC INTERVALS. DISC CAPACITY

ATTACHMENT 10

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
B. GIFFORD	JSC	4/21/76	N22-009P

TITLE

IS/OS COLOR DISPLAY INDICATOR

2. DESCRIPTION OF ITEM: TWO TYPES OF RGB COLOR DISPLAY INDICATORS ARE AVAILABLE FOR INSTALLATION INTO THE IS OR OS CONSOLES (NOT ON-BOARD IS). THESE ARE THE CONRAC RHN/19 AND THE AYDIN 8020 DISPLAY INDICATORS. THE RHN 19 WAS A TRIAD TYPE OF SHOW MASK WHICH PROVIDES BETTER CHARACTERS RESOLUTION ON THE SCREEN BUT DOES REQUIRE CONVERGENCE ALIGNMENT MAINTENANCE. THE AYDIN 8020 HAS POOR CHARACTERS RESOLUTION BUT DOES NOT REQUIRE CONVERGENCE MAINTENANCE, DUE TO THE USE OF THE RCA PRECISION IN-LINE TUBE WHICH HAS SHORT VERTICAL SLITS RATHER THAN COLOR DOT TRIADS.

3. SPECIFICATION:

USE THE SHADOW MASK (CONRAC) TUBES.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

DISPLAY WILL APPEAR LESS "SHARP" WITH AYDIN DISPLAY

5. CONCURRENCE

AREA MANAGER	TEAM LEADER
B M Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Clarke	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

THERE ARE 21 COLOR MONITORS IN THE SMS CONFIGURATION.
DISPLAY INDICATOR LIST PRICES. AYDIN 8020 $1,750.00
CONRAC RHN 19 $3,655.00
Program plan currently includes Aydin display indicators @ 1750/each.
B Gifford 4/22/76

8. DISPOSITION:

Cat I

APPROVAL

PROGRAM MANAGER	DATE
McCaffrey	4/22/76

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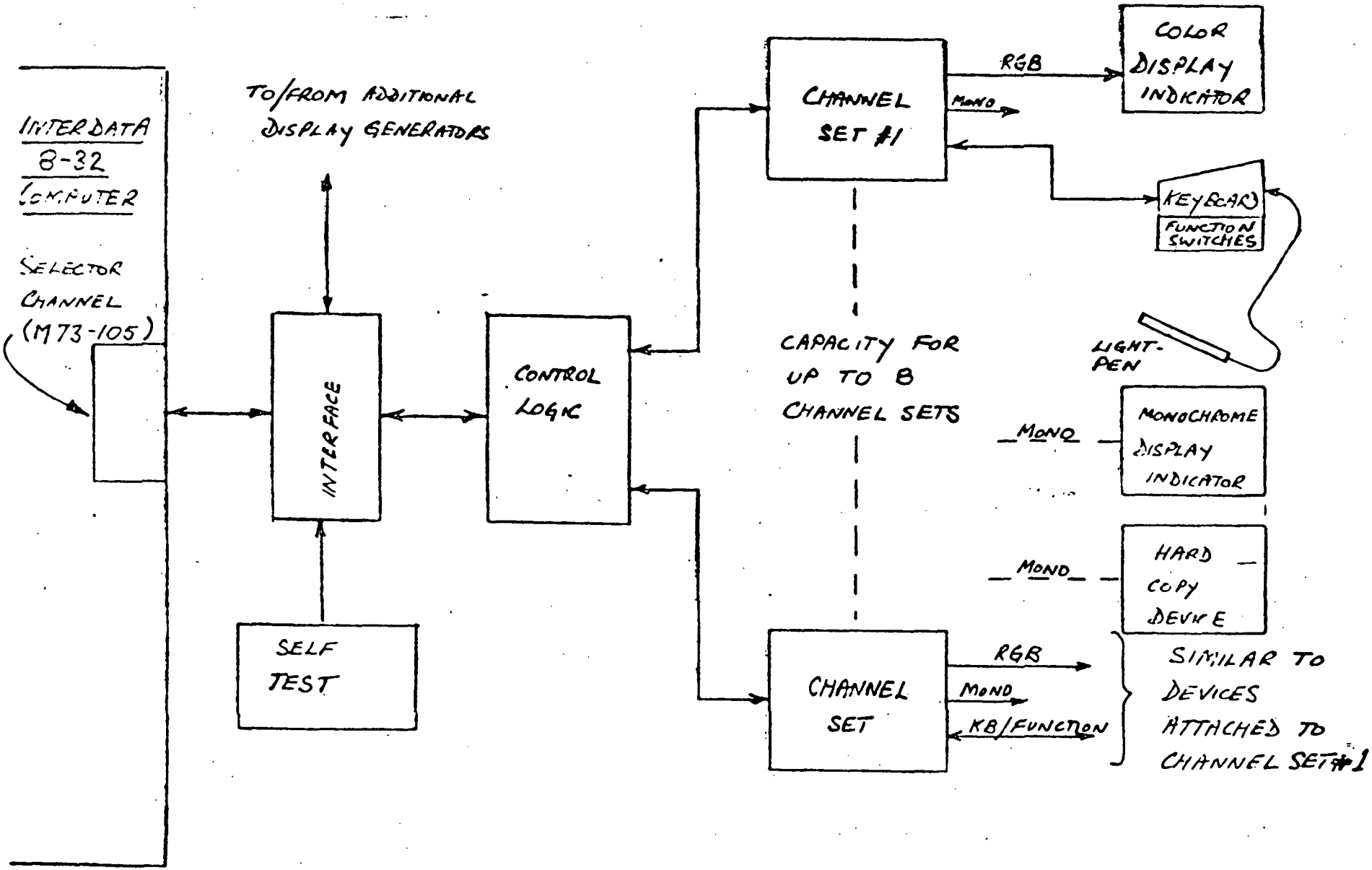
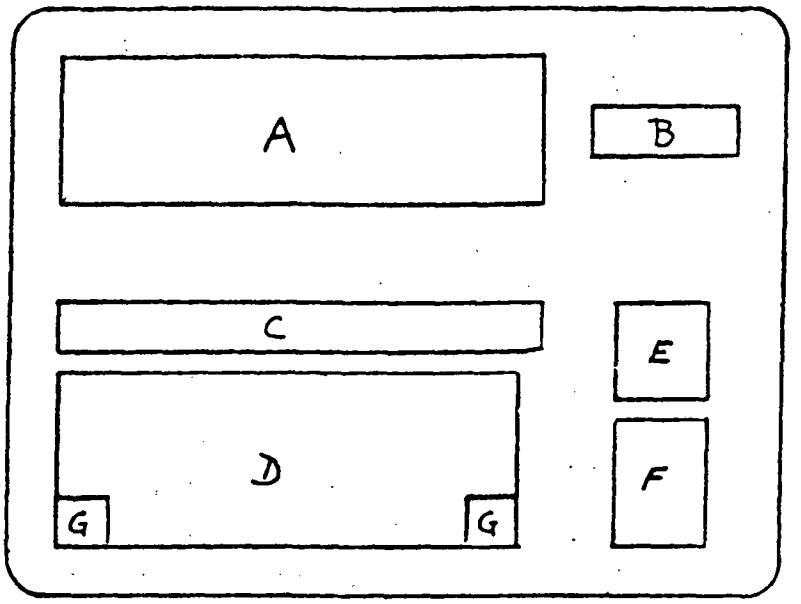


COLOR ALPHA-NUMERIC DISPLAY SYSTEM
COMPONENT DESCRIPTION



KEYBOARD ARRANGEMENT

A - FUNCTION KEYS (QTY 45)
B - DISPLAY CHANNEL SELECT
C - CONTROL KEYS
D - CHARACTER KEYS
E - CURSOR DIRECTION CONTROL
F - NUMERIC KEY PAD
G - SHIFT KEYS

ATTACHMENT 12

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
C. MORTIMER	SPD	4/21/76	S22-003P

TITLE:
LIGHT PEN

2. DESCRIPTION OF PROBLEM:

INTERACTION OF THE USER WITH COMPLEX CRT PAGES REQUIRES EXTENSIVE CURSOR CONTROL BY KEYS PROVIDING CURSOR MOVEMENT IN 8 DIRECTIONS. THIS IS A TEDIOUS AND TIME CONSUMING OPERATION NOT CONDUCIVE TO DIRECT SIMULATOR COMMAND/CONTROL.

3. RECOMMENDATION:

SUPPLEMENT THE KEYBOARD CURSOR CAPABILITY WITH A LIGHT-PEN TO PROVIDE DIRECT SINGLE ACTION PLACEMENT OF THE CURSOR.

4. IF RECOMMENDATION NOT IMPLEMENTED:

TIME REQUIRED FOR PROBLEM OR ITEM INTERACTION IS LONGER WITH KEYBOARD CURSOR CONTROL THEN WITH LIGHT PEN.

5. CONCURRENCE

MANAGER	TEAM LEADER
B M Gaffard	B M Gaffard

6. DISPOSITION

- [ ] Approved
- [ ] Disapproved
- [ ] Withdrawn
- [ ] Tech. Direction
- [X] Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Oldaker	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

COST INCREASE - NO SCHEDULE IMPACT.
IF COMBINED WITH S22-004P COST INCREASE MAY BE NEGATED.

L C Brown → 4/22/76

8. SCP DIRECTIVE:

5R

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

ATTACHMENT 13

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	
C. MORTIMER	SPD	4/21/76	S22-004P

TITLE: EXPANDED KEYBOARD

2. DESCRIPTION OF PROBLEM:

THE ISA PANEL SELECT IS LOCATED AT 8 IS/OS LOCATIONS AS A SEPARATE ENTITY FROM THE IS/OS KEYBOARDS. APPROX 100 SWITCHES ARE REQUIRED TO MAKE UP EACH OF THE ISA CONTROL PANELS.

3. RECOMMENDATION:

EXPAND THE IS/OS KEYBOARDS TO INCLUDE AN ADDITIONAL 45 FUNCTION KEYS. EACH FUNCTION KEY WOULD BE USED TO CALL UP A SEPARATE PANEL, OR A GROUP OF PANELS VIA AN INDEX. SELECTION OF THE APPROPRIATE PANEL FOR DISPLAY WOULD BE VIA DISCRETE CURSOR CONTROL. THIS RECOMMENDATION IS OPTIMISED BY ALSO PICKING UP THE LIGHT-PEN RECOMMENDATION.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

METHOD OF SELECTING PANEL DISPLAYS, SYSTEMS STATUS DISPLAYS ETC. WILL BE MORE CUMBERSOME WITH ISA HARDWARE PANELS THAN WITH THE FUNCTION KEYS.

5. CONCURRENCE

ORIGINATOR	TEAM LEADER
B.M. Gifford	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL DIRECTOR	DATE
L. Clarke	4/22/76

7. CONT ACTOR'S IMPACT STATEMENT:

NO SCHEDULE IMPACT, POSSIBLE COST SAVINGS.

L C Brown 4/22/76

8. DISPOSITION:

5R

APPROVAL

PROGRAM MANAGER	DATE
McCafferty	4/22/76

JSC Form 1570 (Mar 76) NASA-JSC

ATTACHMENT 14

SMS PROGRAM DIRECTIVE

1. ORIGINATOR	ORGANIZATION	DATE	NO.
B. M. GIFFORD	NASA	4/21/76	N22-008P

TITLE

BACK UP COMM OMISSION AT IOS

2. STATEMENT OF PROBLEM:

NO CONTROLS EXIST AT IOS'S FOR BACK UP COMM LOOPS
NO JACKS EXIST AT IOS'S FOR BACK UP COMM LOOPS

3. RECOMMENDATION:

ADD CONTROLS AT IOS'S
ADD JACKS AT IOS'S

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

BACK UP COMM WILL BE UNUSABLE

5. CONCURRENCE

ASSIGNED BY	TEAM LEADER
B.M. Gifford	B M Gifford

6. DISPOSITION

- [ ] Approved
- [ ] Disapproved
- [ ] Withdrawn
- [ ] Tech. Direction
- [X] Contractor's Impact Statement Req.

COMMENTS:

APPROVED

TECHNICAL MANAGER	DATE
L Clarky	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO COST OR SCHEDULE IMPACT. INVESTIGATION WAS UNDER WAY AS PART OF COMM DESIGN.

L L Brown 4/22/76

8. SCP ACTION:

5T

APPROVED

BY (SCP Manager)	DATE
M C Coffey	4/22/76

JSC Form 1570 (Mar 70) NASA-JSC

ATTACHMENT 15

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
R. L. MYERS	JSC	4/21/76	N22-006P

TITLE:
ADDITIONAL INDICATOR LIGHTS ON MBIS & FBIS

2. DESCRIPTION OF PROBLEM:
THERE IS NO IMMEDIATE INDICATION OF ABORT, RECORD IN PROGRESS, OR MASTER ALARM ON THE IS.

3. RECOMMENDATION:
ADD "ABORT", "MASTER ALARM" AND "RECORD IN PROGRESS" LIGHTS ON PANELS 3C, 3F, 12C and 12F.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:
INSTRUCTORS NEED TO KNOW WHEN RECORD FOR RECORD/PLAYBACK IS IN PROGRESS AND NEEDS TO KNOW RAPIDLY WHEN AN ABORT OR MASTER ALARM OCCURS SO THAT THEY CAN REACT TO IT.

5. CONCURRENCE

ANALYST/USER	TEAM LEADER
B M Gafford	B M Gafford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☒ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Mackey	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:
NO COST OR SCHEDULE IMPACT.

L L Brown, 4/22/76

8. SCP ACTION:

57

APPROVAL

SCP CHAIRMAN	DATE
M C Cuffley	4/22/76

JSC Form 1870 (Mar 76) NASA

FORWARD CREW STATION

PRELIMINARY DESIGN
REVIEW MINUTES

APPROVAL _____
TOM GEREK
SECTION CHIEF

APPROVAL _____
CLIFF MIRE
WORK PACKAGE MANAGER

C/S PDR-

Attendees

C. Mire	Bruce Stark
A. Ulangca	Charles Olasky
T. Gerek	Bert Gifford
K. Hickling	John Donnellon
R. Meyers	

Tom Gerek handed out Attachment 1 - updated forward panel configuration and Attachment 2 - updated forward component identification to reflect Revision C of panel layouts received at Rockwell 4/6 & 7. PDR for the Aft Station of FBCS is tenatively scheduled for June 11, 1976.

SPD stated that the following:

1) Forward structure
2) Overhead structure
3) Eyebrow structure

Designs have changed such that the MBCS structures require redesign - the forward structure can be reworked - However items 2 and 3 can not be reworked and require refabrication.

4) Most Flags on MBCS are not reusable - 3 position presently vs 2 positions on OAS.

SPD presented RID's S20-001P, 002P, 003P, 004P to NASA - (Attachment 7, 8, 9, 10).

SPD stated that the SMS instruments would

1) Be provided with Mil Spec. lighting.
2) Not have shatter shields

Discussion on the Rotational Hand Controller mounting structure led to the conclusion that SPD presently had adequate data in this area (OV101 data).

SPD stated that the Rudder Pedals would be the same as 101.

SPD stated that the Speed Brake/Thrust Controller for SMS would be same as OAS (101).

SPD presented a layout of the FBCS Crew Station/Platform. SPD stated that a 16 ft. corridor could be allowed for insertion of a mid deck structure by NASA. The height of the complex, including visual estimate, comes within 3 feet of the ceiling.

Action SPD - To firm up the estimate for the Aft Visual Structure size by July 1, 1976.

During discussion on entrance methods into the C/S SPD stated that if the mid deck is installed, the top of the mid deck mockup ladder would not reach the floor of the flight deck C/S due to platform floor thickness. The mid deck ladder would need to be made longer (taller) than normal. Discussion ensued on number of ladders providing entrance to the Crew Station - NASA wrote RID N20-001P (Attachment 5) to request 2 ladders.

The CEI spec was reviewed - NASA requested

1) A statement that the FBCS mod kit would be added at a later date.
2) Annotate the appendix as to FBCS or MBCS.
3) Add statements as to differences between FBCS, FBCS mod kit or MBCS mod kit.
4) Add statements as to FBCS structure.

NASA wrote RID N20-002P (Attachment 6) on CEI spec for C/S In general NASA requested more detail in the CEI specs. Discussion ensued on the CEI format. This will be discussed during the program review. NASA is concerned that the CEI formats do not presently allow the individual CEI's to be combined into one total document.

Discussion ensued on the status of the GFE dates.

NASA requested SPD to provide on the form of Attachment 3 the following info for Panels, Assembly drawings, and Structure drawings. (Attachment 3 covers the forward station, only at this time).

1) Which items does the Rockwell schedule depict release dates for VO type drawings prior to the GFE data of 6/26.
2) Which items does the Rockwell schedule depict availability dates for VL type drawings prior to the GFE date of 6/26.
3) Which items does the Rockwell schedule depict VO or VL drawings subsequent to the GFE date of 6/26.

It was noted that for all items which fall into category 3, NASA and SPD would make assumptions prior to 6/26 to allow SPD effort to proceed. A working meeting with NASA will be held during the week of June 21, 1976 to finalize these assumptions.

NASA requested comparable information on Spec Control drawings except the GFE data delivery date is 5/26. A working meeting with NASA will be held on or before 5/26, at Houston, to finalize assumptions in this area.

This information is enclosed as Attachment 13.

NASA wrote RID on Panel #019 Definition. (Attachment 14).

SPD notified NASA that the HSI Faceplate Bezel has changed- a RID has been submitted to NASA on OAS and has not been dispositioned.

SPD submitted RID's on HSI configuration changes and shatter shields (Attachment 11 & 12).

SPD stated that a component listing (partial) was received from Rockwell 4/19/76 and will be compared with the PDR documentation. The partial Rockwell list will be used to update the documentation in areas where applicable, SPD may still have quantity descreptances due to drawing layout interpretion and the partial component listing being incomplete. NASA stated that Attachment 3 should be filled out by SPD to indicate on a panel or a component basis whether SPD plans on utilizing released drawings or specs, layout drawings, preliminary specs or undimensional layouts. (Based on Rockwell schedule received 4/6/76.)

Attachment 4 was presented by A. Ulangca.

SPD stated that the panel fastener would not be real-world due to cost considerations. TRIDAIR used in vehicle - SPD suggests use of captive screws. (Ref. OAS.)

Discussion on secondary structure led to NASA giving SPD permission to assume the glareshield will be same as 101. Discussion on the GFE seats led to NASA giving SPD permission to assume the GFE F12 seats would mount and interface with the SPD structure the same as OAS seats.

SPD Action - Abstract from Attachment 3 the areas where there is indication that NO VO's or VL's are planned to be available prior to 6/26/76 and concentrate on working with Rockwell to obtain data or pieces of data which will help support SPD design or assumptions needed to enable Singer to "move-out" on 6/26/76.

The following forward panels were changed by Revision C of VL70-730102.

C2

C3

F7

[redacted]

[redacted]

L1

L2

L4

02

06

08

09

013

014

015

016

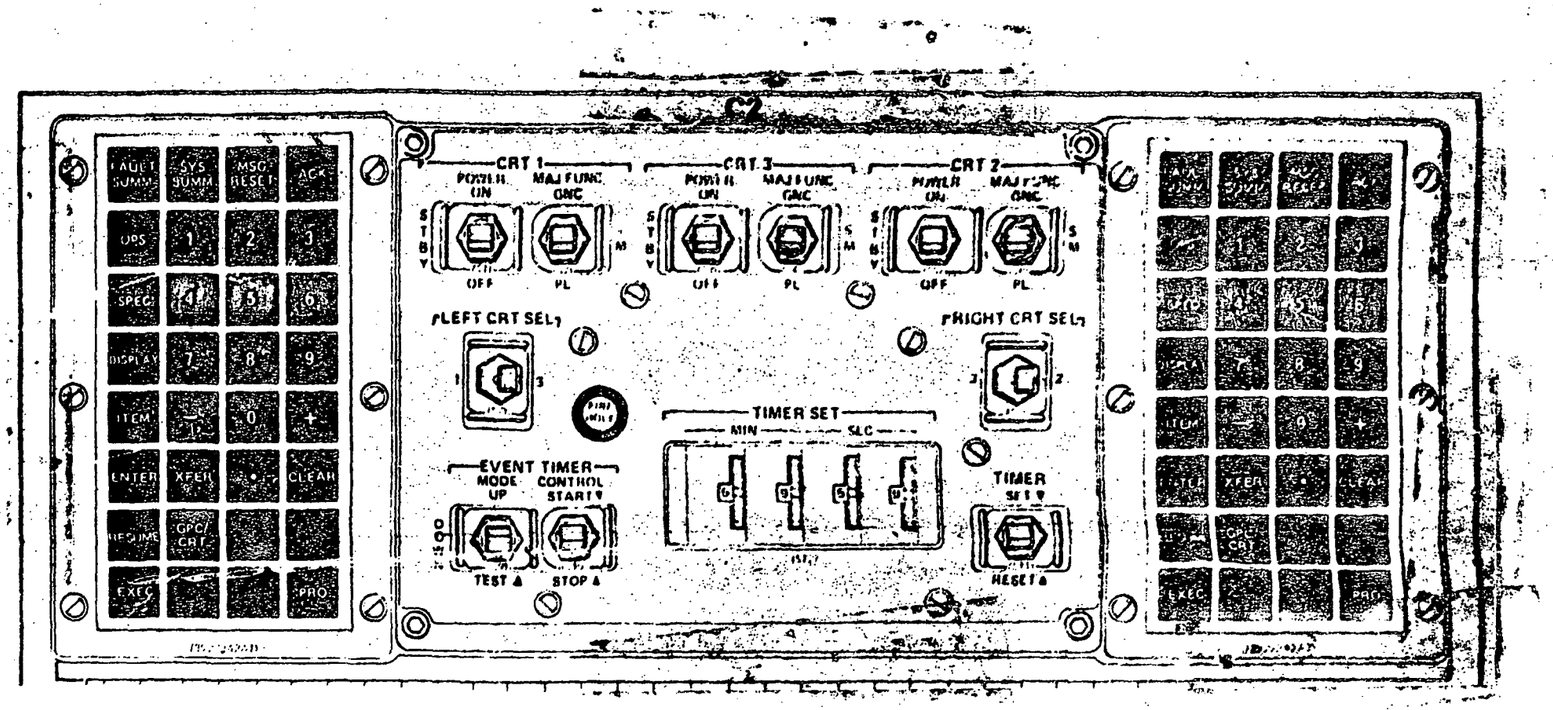
017

019

R1A1

R2

R4


C2
CRT 1
CRT 3
CRT 2
POWER ON
MAL FUNC GNC
STBY
OFF
PL
LEFT CRT SEL
RIGHT CRT SEL
TIMER SET
MIN
SEC
EVENT TIMER
MODE UP
CONTROL START
TEST
STOP
TIMER SET
RESET
FAULT SUMM
SYS SUMM
MSG RESET
ACK
UPD
SPEC
DISPLAY
ITEM
ENTER
XFER
CLEAR
RESUME
GPC/CRT
EXEC
PRO

PANEL C2

C3
OMS ENG
LEFT
RIGHT
ARM PRESS
ARM
OFF
E-AP GAIN
PITCH ROLL YAW
HIGH
LOW
LOAD RELIEF
ON
OFF
NORM
ORBITAL DAP
CONTROL
RCS JETS
SELECT
A
B
AUTO
MAN
NORM
VERN
TRANSLATION
MANUAL MODE
ROTATION
X
Y
Z
ROLL
PITCH
YAW
HIGH
NORM
PULSE
DISC RATE
ACCEL
FCS CHANNEL
OVERRIDE
MAIN ENGINES
SHUTDOWN
ENABLE
INHIBIT
BODY FLAP
PITCH TRIM
SRB SEPARATION
EI SEPARATION
MAIN SEP
SEP
AUTO
SBAND ANTENNA
CAUTION/WARNING
AIR DATA PROBE
LEFT
RIGHT
DEPLOY/HEAT
STOW
DEPLOY
HI SAMPLE
LO SAMPLE
STANDBY
DFI RECORDERS
WIDEBAND
WIDEBAND MISSION
ASCENT
TAPE MOTION
PCMF
CONTINUOUS RECORD
OI PCMMU
AUDIO CENTER
FORMAT
BATTERY
ON
OFF
PROBE
PANEL
MASTER ALARM
EMERGENCY LIGHTING
ON
OFF

PNL C3

CRT 1

BRT DEU DU

(34V73A7A1)

O_2 PRESS	H_2 PRESS	FUEL CELL REAC (R)	FUEL CELL STACK TEMP	FUEL CELL PUMP
CABIN ATM (R)	O_2 HEATER TEMP	MAIN BUS UNDERVOLT	AC VOLTAGE	AC OVERLOAD
FREON LOOP (R)	AV BAY/ CABIN AIR	IMU (R)	FWD RCS (R)	RCS AC
H_2O LOOP	RGA/ ACCEL	AIR DATA (R)	LEFT RCS (R)	RIGHT RCS
——— (R)	LEFT RHC (R)	RIGHT/AFT RHC (R)	LEFT OMS (R)	RIGHT OMS
PAYLOAD WARNING (R)	OPC	FCS SATURATION (R)	OMS KIT	RMS TK
PAYLOAD CAUTION	PRIMARY C/W	FCS CHANNEL	MPS (R)	
BACKUP C/W ALARM (R)	APU TEMP	APU OVERSPEED	APU UNDERSPEED	HYD PRESS

(34V73A7A2)

ELEVONS - DEG BODY FLAP % RUDDER - DEG

AILERON - DEG

SPEEDBRAKE %

COMMAND

OFF

(34V73A7A3)

CRT 2

BRT DEU DU

34V73A7A4)

OMS PRESS

Pc LEFT RIGHT N2/He TANK LEFT KIT RIGHT

EVENT TIME D HR MIN SEC

FIRE HOLD

SM ALERT (R)

(XDS1)

N2 He (S1) KIT He

ACCEL g UNITS

(34V73A7A5)

CRT 3

BRT DEU DU

F7

MPS PRESS

Pc 1 2 3 ENG MANF LO2 LH2 ULLAGE LO2 LH2 HELIUM PNEU 1 2 3

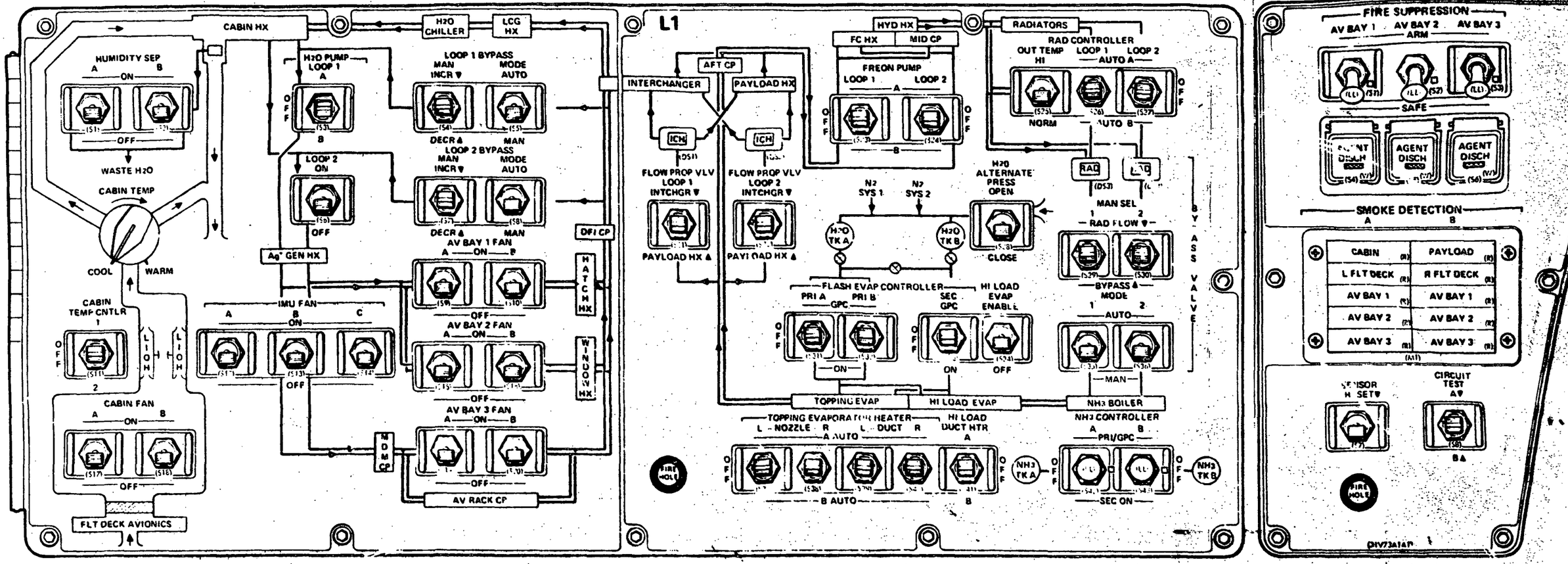
MAIN ENGINE STATUS

TANK

REG

(34V73A7A7)

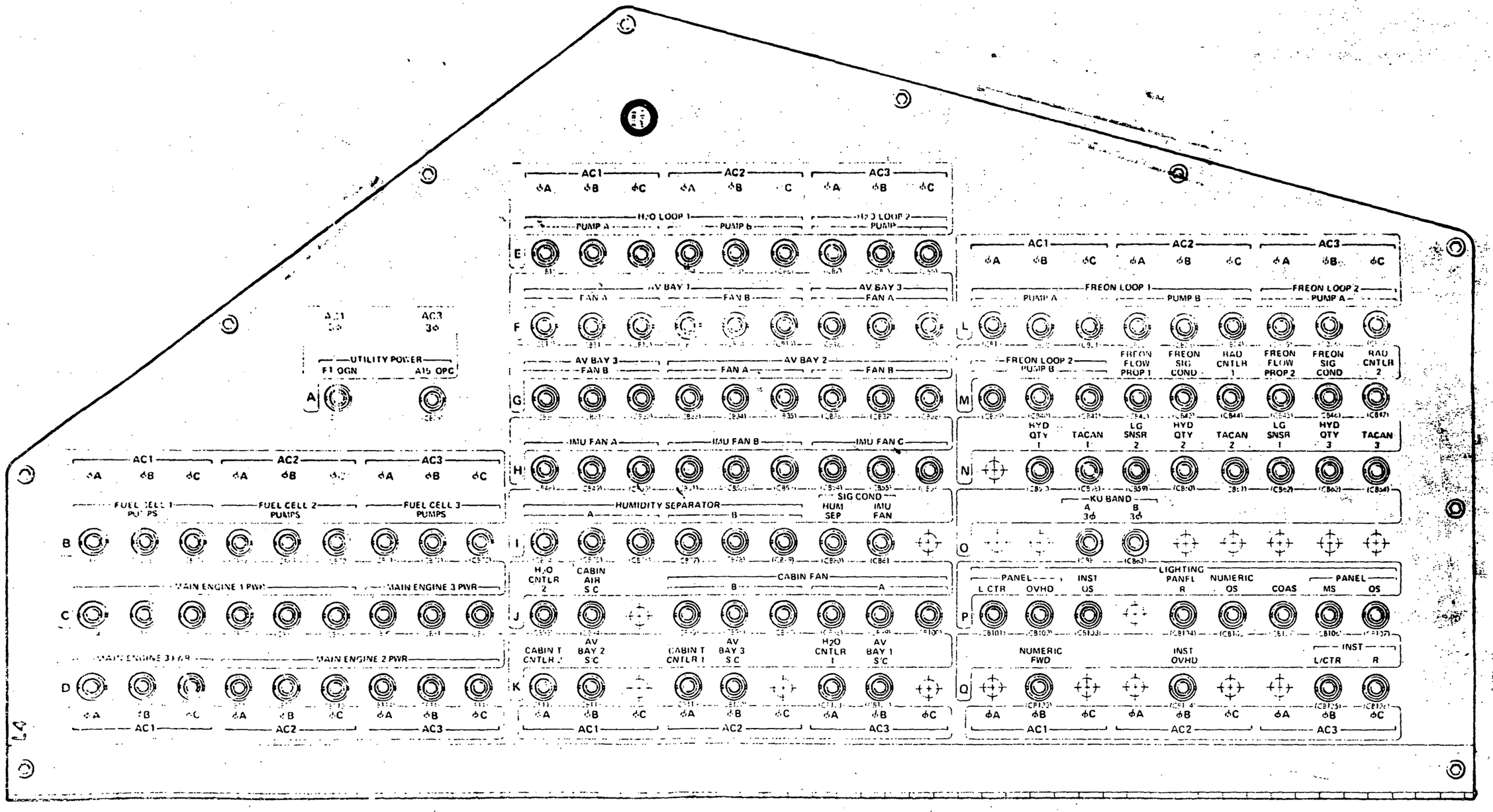
PNL F7


CABIN HX
H2O CHILLER
LCG HX
HUMIDITY SEP
A ON B
OFF
WASTE H2O
CABIN TEMP
COOL
WARM
CABIN TEMP CNTLR 1
OFF
LIOH
LIOH
2
CABIN FAN
A ON B
OFF
FLT DECK AVIONICS
H2O PUMP LOOP 1
A
OFF
B
LOOP 2 ON
OFF
LOOP 1 BYPASS
MAN INCR
MODE AUTO
DECR
MAN
LOOP 2 BYPASS
MAN INCR
MODE AUTO
DECR
MAN
Ag+ GEN HX
IMU FAN
A B C ON
OFF
AV BAY 1 FAN
A ON B
OFF
AV BAY 2 FAN
A ON B
OFF
AV BAY 3 FAN
A ON B
OFF
AV RACK CP
DFI CP
HATCH HX
WINDOW HX
MDM CP
L1
HYD HX
FC HX
MID CP
RADIATORS
RAD CONTROLLER
OUT TEMP HI
LOOP 1
LOOP 2
AUTO A
NORM
AUTO B
AFT CP
INTERCHANGER
PAYLOAD HX
FREON PUMP
LOOP 1
A
LOOP 2
B
OFF
ICH
FLOW PROV VLV LOOP 1 INTCHGR
FLOW PROV VLV LOOP 2 INTCHGR
PAYLOAD HX A
PAYLOAD HX A
N2 SYS 1
N2 SYS 2
H2O TK A
H2O TK B
H2O ALTERNATE PRESS OPEN
CLOSE
RAD
MAN SEL
1 2
RAD FLOW
BYPASS A MODE
1 2
AUTO
MAN
BY-PASS VALVE
FLASH EVAP CONTROLLER
PRI A
PRI B
GPC
SEC GPC
HI LOAD EVAP ENABLE
ON
ON
OFF
TOPPING EVAP
HI LOAD EVAP
NH3 BOILER
NH3 CONTROLLER
A B
PRI/GPC
TOPPING EVAPORATOR HEATER
L NOZZLE R
L DUCT R
A AUTO
HI LOAD DUCT HTR
A
B AUTO
B
NH3 TK A
NH3 TK B
SEC ON
FIRE HOLE
FIRE SUPPRESSION
AV BAY 1
AV BAY 2
AV BAY 3
ARM
SAFE
AGENT DISCH
AGENT DISCH
AGENT DISCH
SMOKE DETECTION
A
B
CABIN
PAYLOAD
L FLT DECK
R FLT DECK
AV BAY 1
AV BAY 1
AV BAY 2
AV BAY 2
AV BAY 3
AV BAY 3
SENSOR HI SET
CIRCUIT TEST
A
B
FIRE HOLE

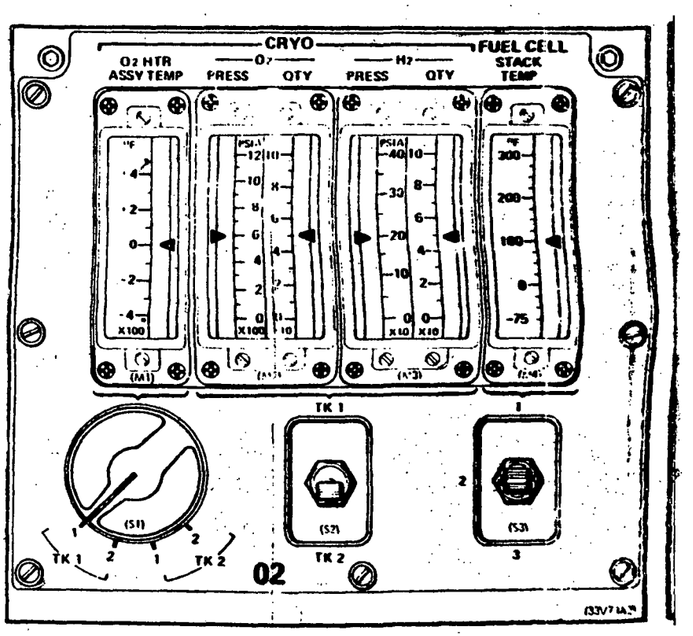
PNL L1

L2
ATM PRESS CONTROL
CABIN RELIEF
CABIN VENT
ANTISKID
NOSE WHEEL STEERING
BODY FLAP
TRIM
ROLL
PITCH
YAW TRIM
A
B
ENABLE
VENT ISOL
OPEN
CLOSE
VENT
AUTO
OFF
DIRECT
UP
DOWN
LEFT
RIGHT

PANEL L2


AC1
AC2
AC3
ϕA
ϕB
ϕC
H2O LOOP 1
H2O LOOP 2
PUMP A
PUMP B
AV BAY 1
AV BAY 2
AV BAY 3
FAN A
FAN B
FREON LOOP 1
FREON LOOP 2
FREON FLOW PROP 1
FREON SIG COND
RAD CNTLR 1
FREON FLOW PROP 2
FREON SIG COND
RAD CNTLR 2
UTILITY POWER
F1 OGN
A15 OPC
IMU FAN A
IMU FAN B
IMU FAN C
HYD QTY 1
TACAN 1
LG SNSR 2
HYD QTY 2
TACAN 2
LG SNSR 1
HYD QTY 3
TACAN 3
FUEL CELL 1 PUMPS
FUEL CELL 2 PUMPS
FUEL CELL 3 PUMPS
HUMIDITY SEPARATOR
A
B
SIG COND
HUM SEP
IMU FAN
KU BAND
A 3ϕ
B 3ϕ
MAIN ENGINE 1 PWR
MAIN ENGINE 3 PWR
MAIN ENGINE 2 PWR
H2O CNTLR 2
CABIN AIR S/C
CABIN FAN
CABIN T CNTLR 2
AV BAY 2 S/C
CABIN T CNTLR 1
AV BAY 3 S/C
H2O CNTLR 1
AV BAY 1 S/C
LIGHTING
PANEL L CTR
PANEL OVHD
INST OS
PANEL R
NUMERIC OS
COAS
PANEL MS
PANEL OS
NUMERIC FWD
INST OVHD
INST L/CTR
INST R
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q

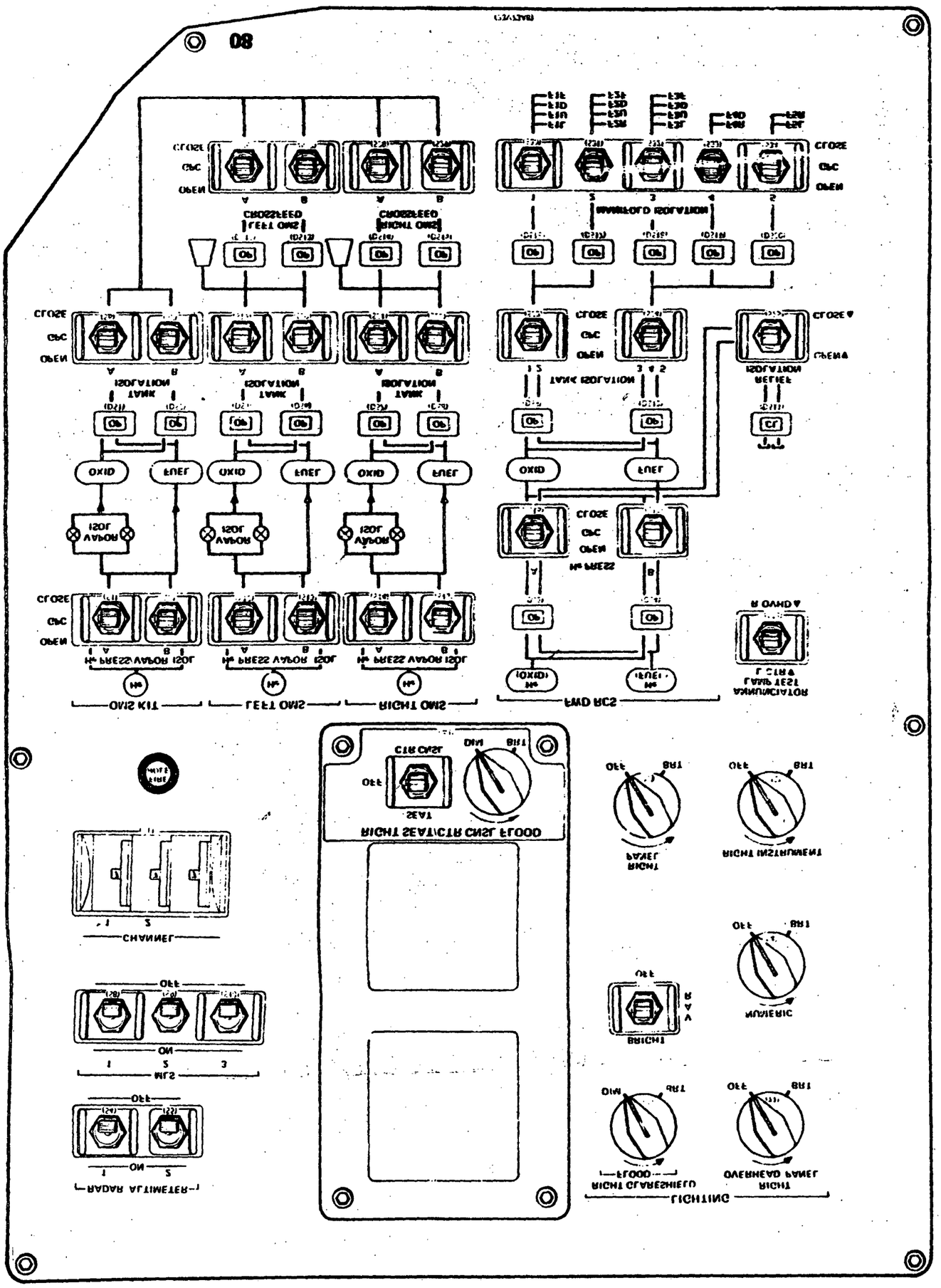
PANEL L4


CRYO
FUEL CELL
O2 HTR ASSY TEMP
O2 PRESS
O2 QTY
H2 PRESS
H2 QTY
STACK TEMP
TK 1
TK 2
02

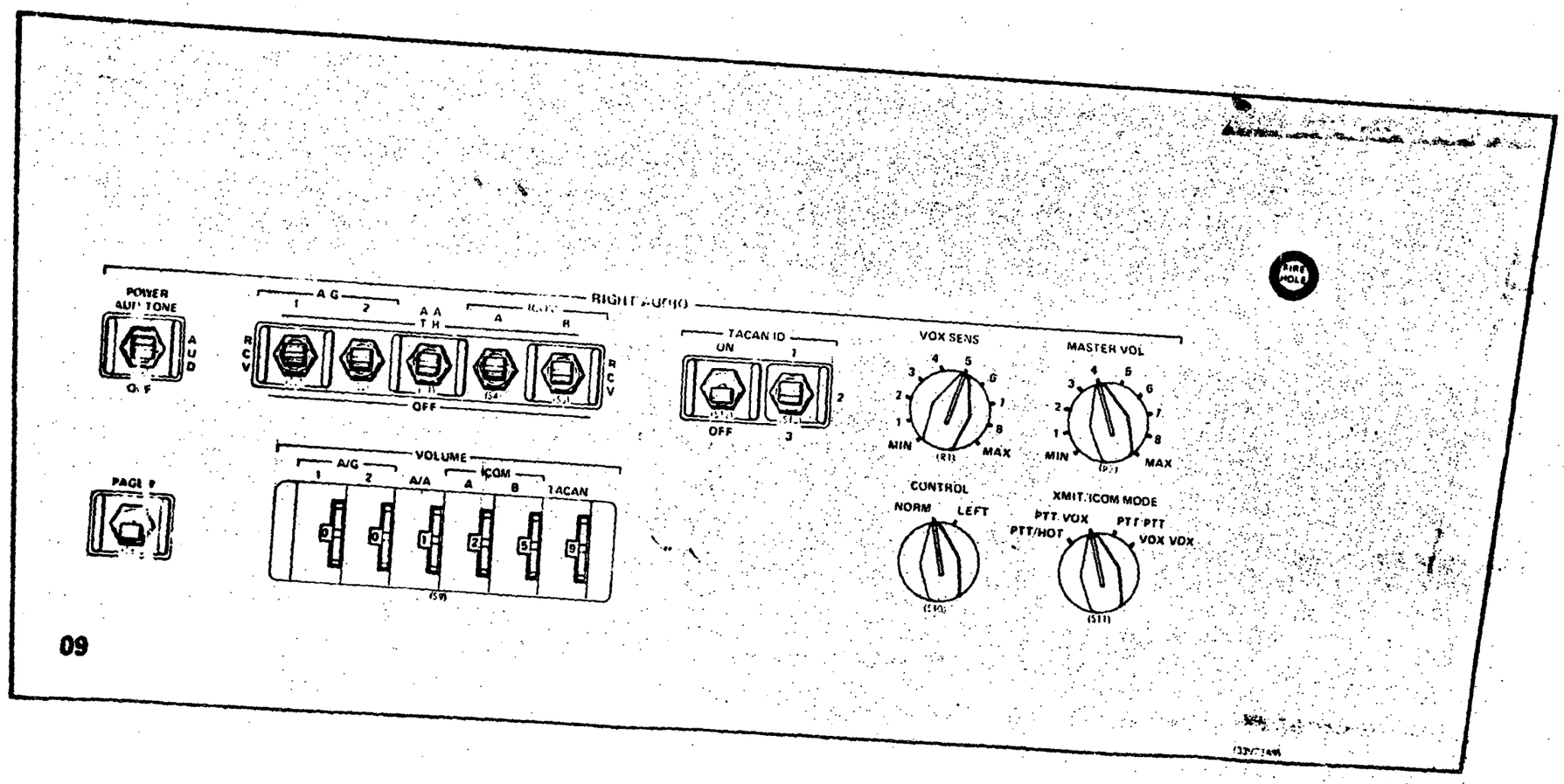
PNL 02

LIGHTING
LEFT OVERHEAD PANEL
OFF
BRT
LEFT GLARESHIELD FLOOD
DIM
BRT
OVHD INSTRUMENT
OFF
BRT
BRIGHT
OFF
LEFT INSTRUMENT
OFF
BRT
LEFT CENTER PANEL
OFF
BRT
ANNUNCIATOR
BUS SELECT
L CTR
L OVHD
MNA
R CTR
MNB
R OVHD
MNC
INTENSITY
BRIGHT
DIM
MED
MASTER ALARM RESET
OSC 1
OSC 2
DISPLAY ELECTRONICS UNIT
1
2
3
4
LOAD
MDM
PL1
PL2
PL3
ON
OFF
FLT CRIT ART
FA1
FA2
FA3
FA4
FLT CRIT FWD
FF1
FF2
FF3
FF4
GENERAL PURPOSE COMPUTER
POWER
1
2
3
4
5
OUTPUT
NORMAL
TERMINATE
INITIAL PROGRAM LOAD
MODE
RUN
HALT
STBY
LEFT SEAT/CTR CNSL FLOOD
SEAT
CTR CNSL
DIM
BRT
STAR TRACKER
OP
DOOR
-Y
OPEN
-Z
CLOSE
POWER
-Y
ON
-Z
OFF
PANEL HOLE
UHF
XMIT FREQ
296.8
259.7
ANTENNA EXT
AIRLOCK
SQUELCH ON
OFF
UHF MODE
SIMPLEX
SIMPLEX • G RCV
G T:R
EVA
IPL SOURCE
MDM 1
MDM 2
OFF

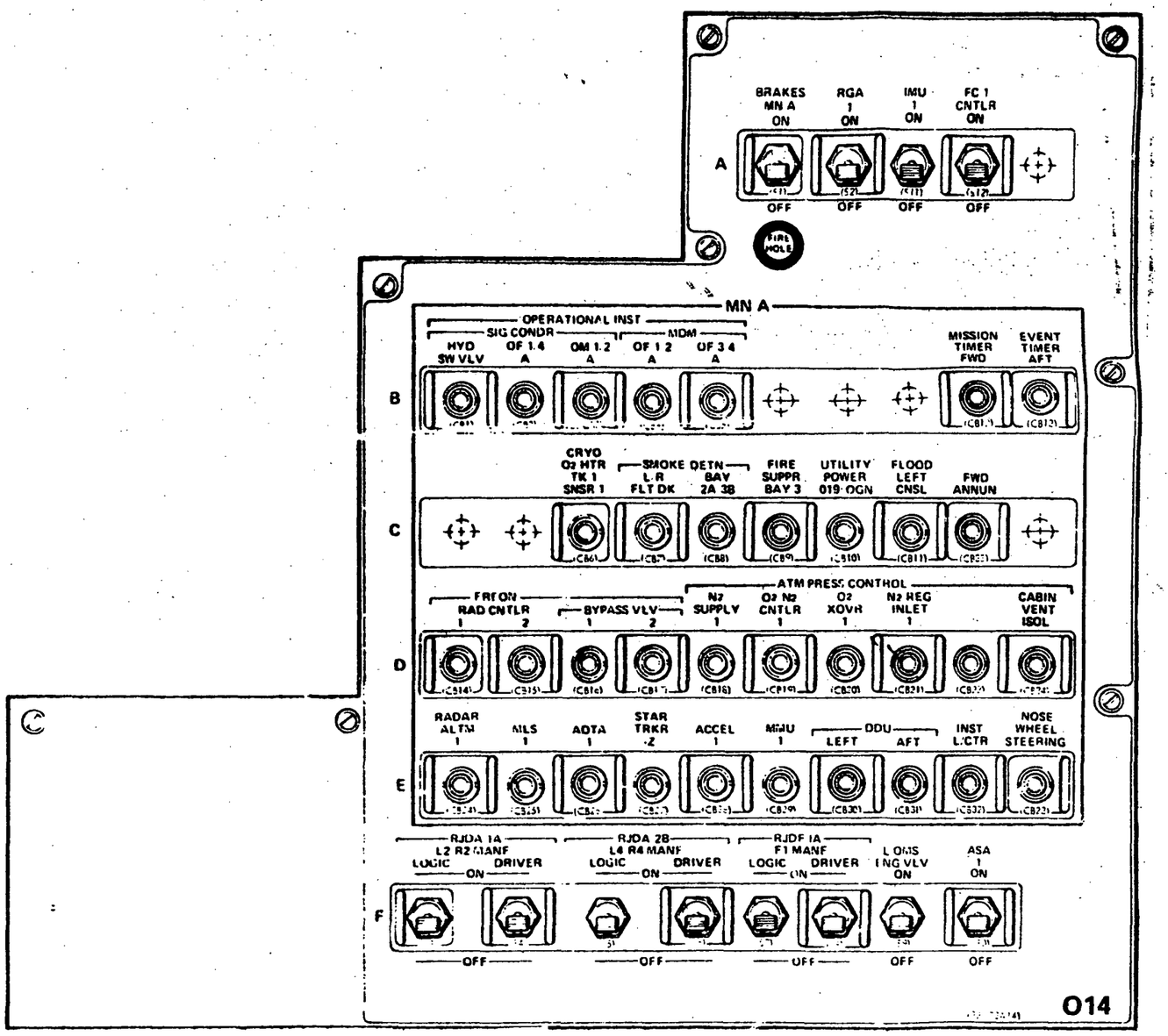
PNL 06

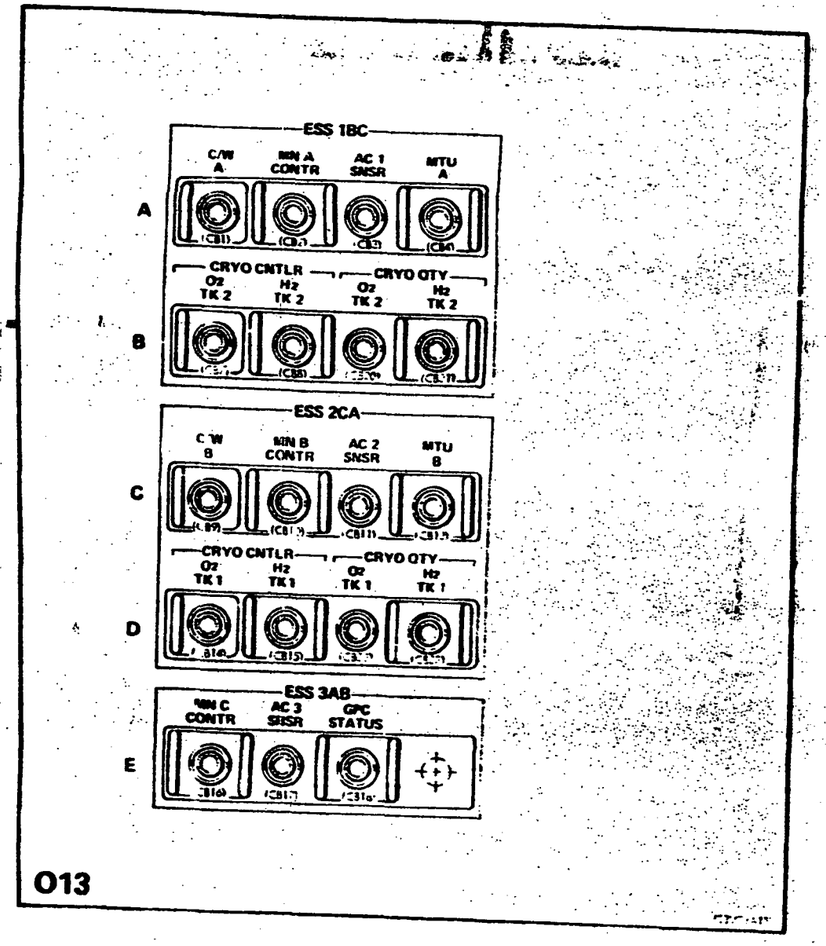

08
CLOSE
OPEN
RIGHT OMS
LEFT OMS
OMS KIT
RADAR ALTIMETER
LIGHTING
RIGHT SEAT/CTR CNSL FLOOD
RIGHT INSTRUMENT
MAGNETIC
OVERHEAD PANEL
RIGHT CRASHSHIELD
FLOOD
CHANNEL
RIGHT
SEAT
CTR CNSL

PANEL 08


RIGHT AUDIO
POWER
AUD TONE
OFF
A G
1
2
A A
T H
A
R
RCV
OFF
TACAN ID
ON
1
OFF
3
2
VOX SENS
MIN
MAX
MASTER VOL
MIN
MAX
VOLUME
A/G
1
2
A/A
ICOM
A
B
TACAN
PAGE
CONTROL
NORM
LEFT
XMIT ICOM MODE
PTT VOX
PTT/HOT
PTT PTT
VOX VOX
09

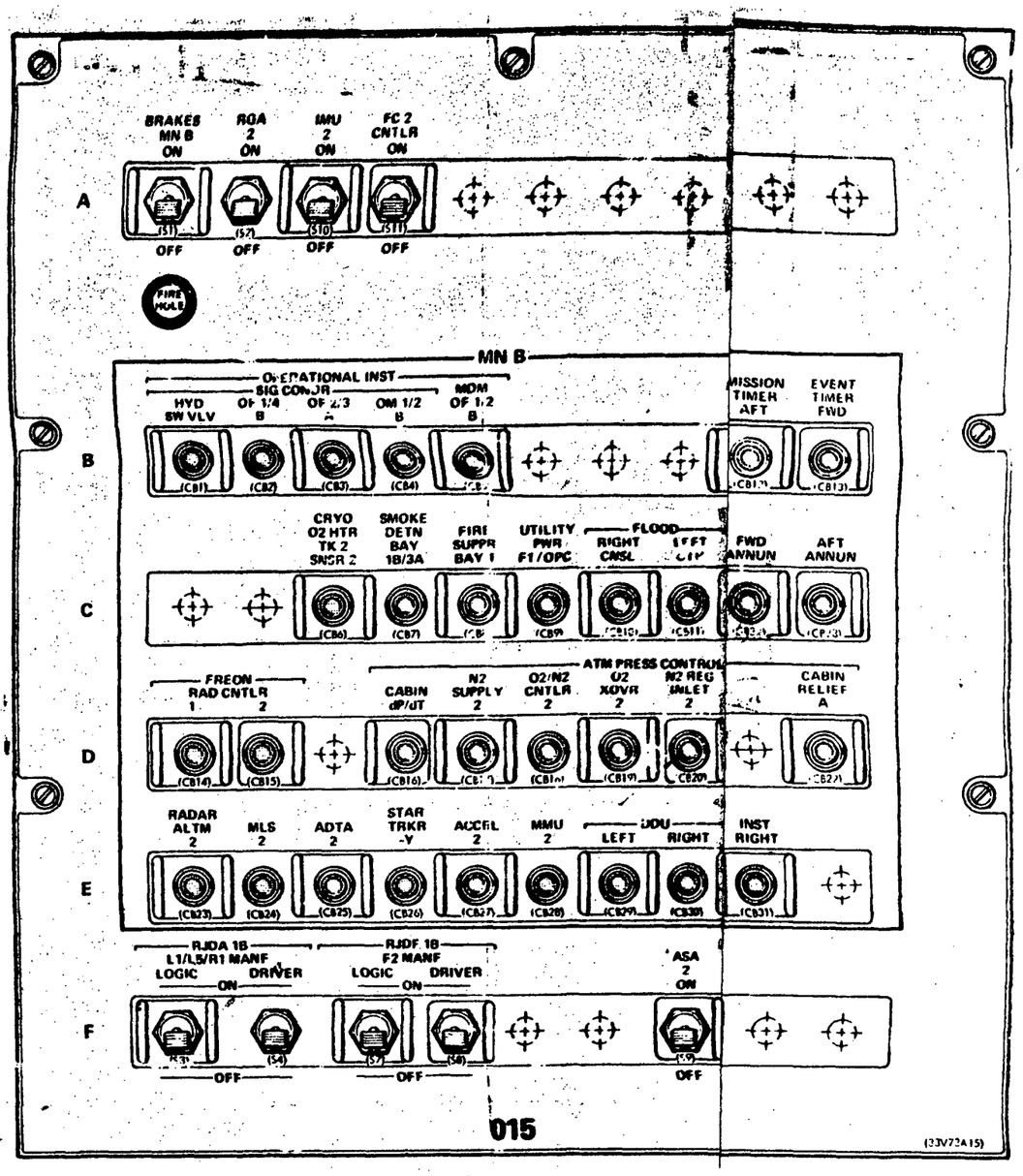
PANEL 09

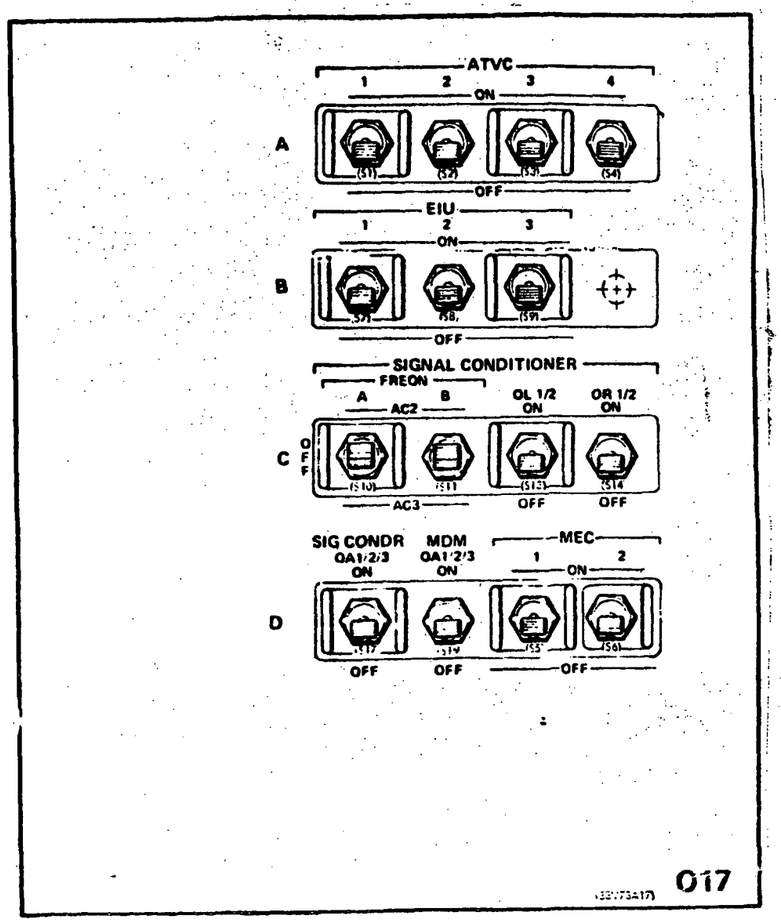


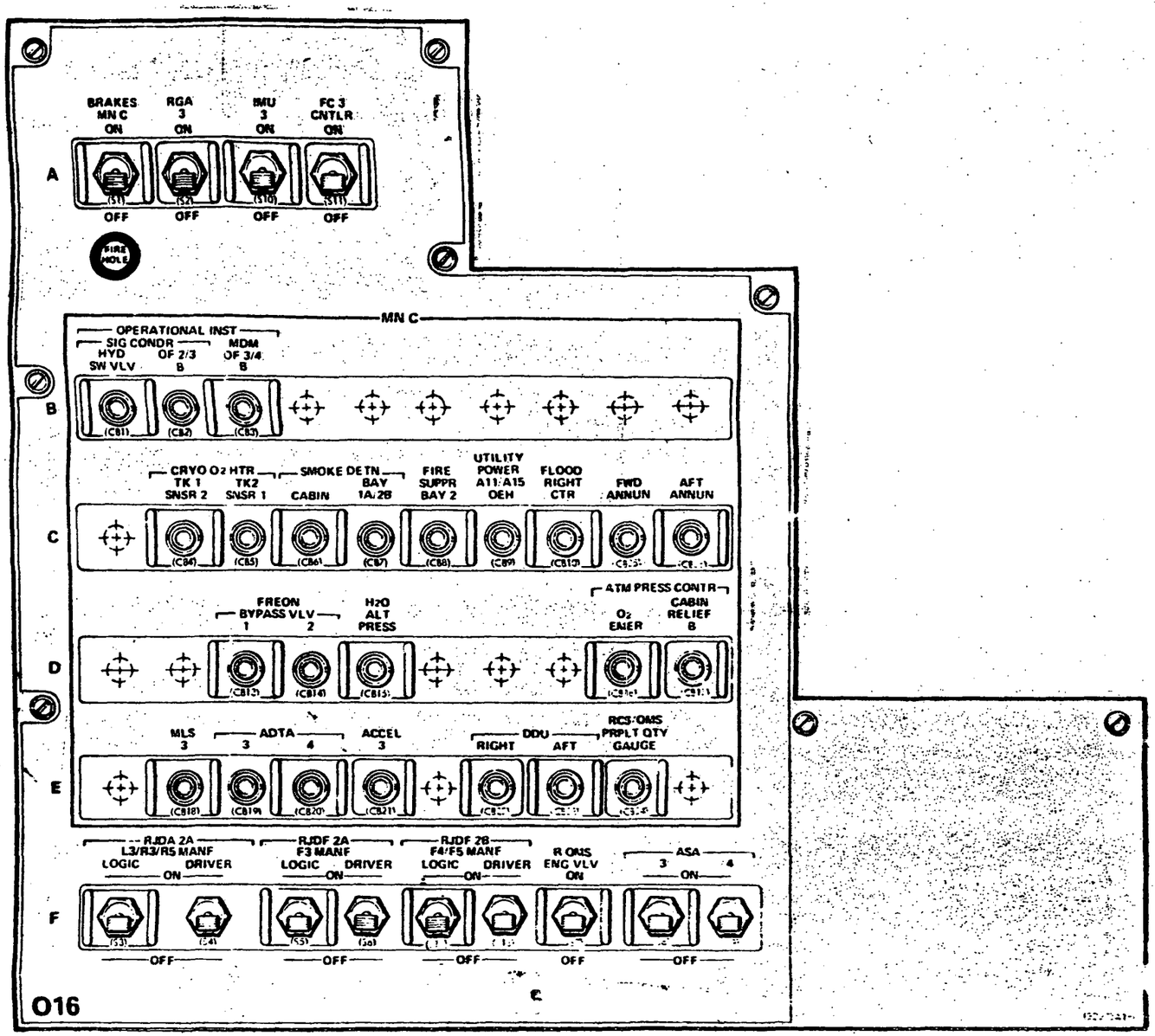


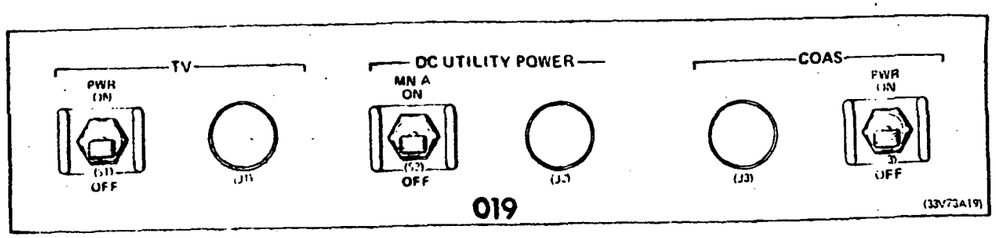
PANEL 013
014

PANEL 015

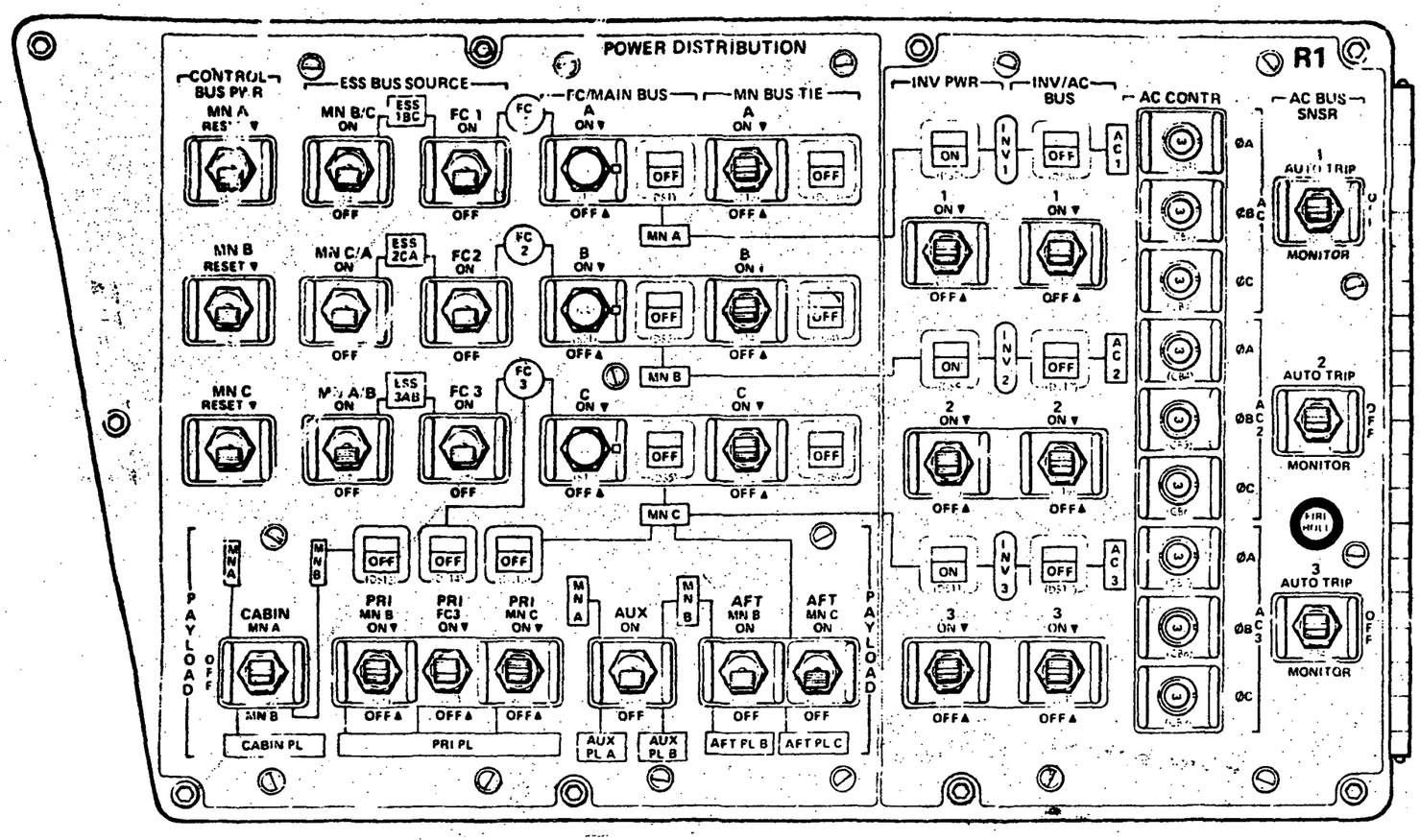

BRAKES MN B ON
RGA 2 ON
MMU 2 ON
FC 2 CNTLR ON
A
OFF
OFF
OFF
OFF
FIRE WALL
MN B
OPERATIONAL INST
SIG CONDR
HYD SW VLV
OF 1/4 B
OF 2/3 A
OM 1/2 B
MDM OF 1/2 B
MISSION TIMER AFT
EVENT TIMER FWD
B
CRYO O2 HTR TK 2 SNSR 2
SMOKE DETN BAY 1B/3A
FIRE SUPPR BAY 1
UTILITY PWR F1/OPC
FLOOD
RIGHT CNSL
FWD ANNUN
AFT ANNUN
C
FREON
RAD CNTLR 1
2
CABIN dP/dT
N2 SUPPLY 2
O2/N2 CNTLR 2
ATM PRESS CONTROL
O2 XOVR 2
N2 REG INLET 2
CABIN RELIEF A
D
RADAR ALTM 2
MLS 2
ADTA 2
STAR TRKR -Y
ACCEL 2
MMU 2
DDU
LEFT
RIGHT
INST RIGHT
E
RJDA 1B
L1/L5/R1 MANF
LOGIC
DRIVER
ON
RJDF 1B
F2 MANF
LOGIC
DRIVER
ON
ASA 2 ON
F
OFF
OFF
OFF
015
(23V72A15)



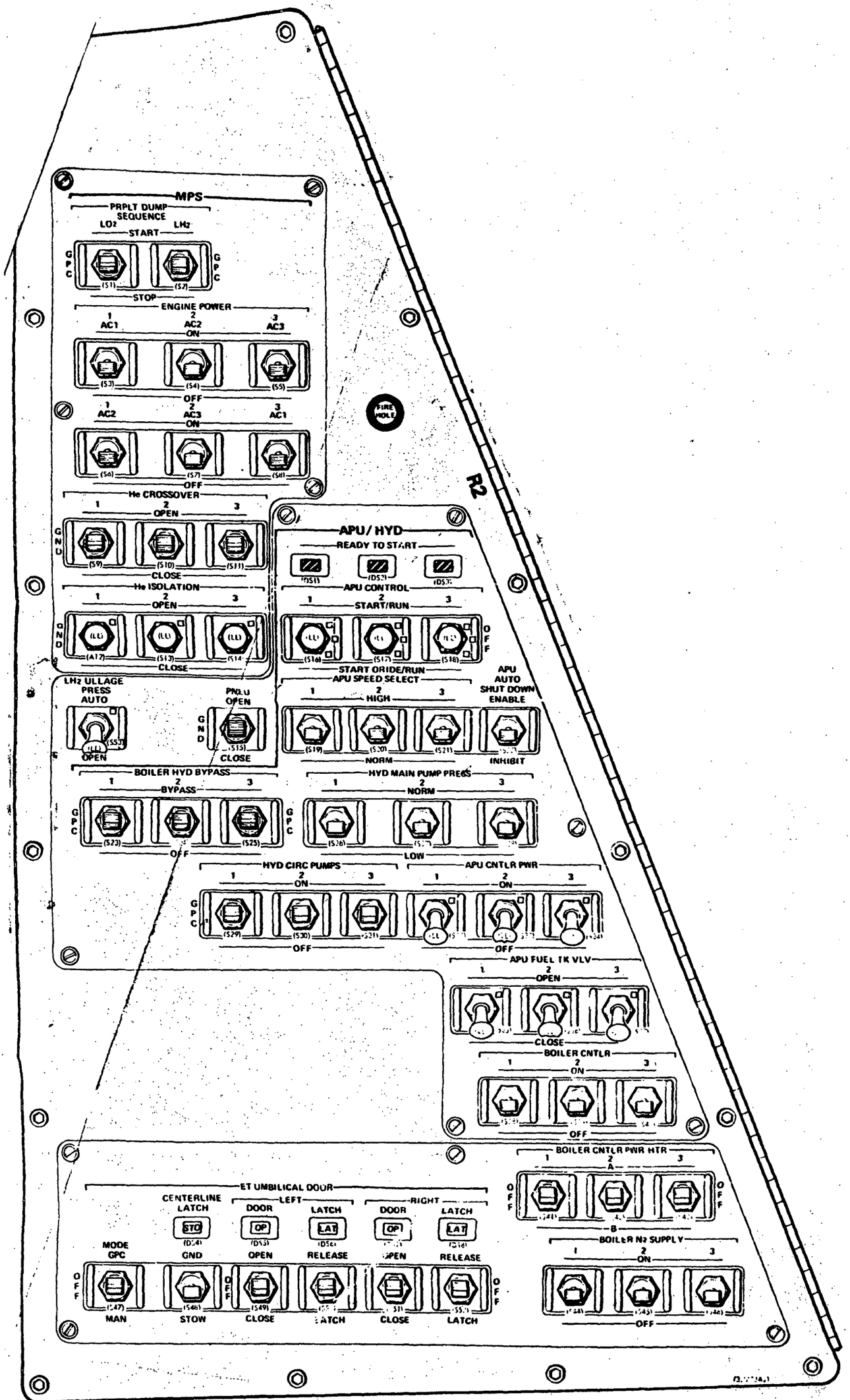




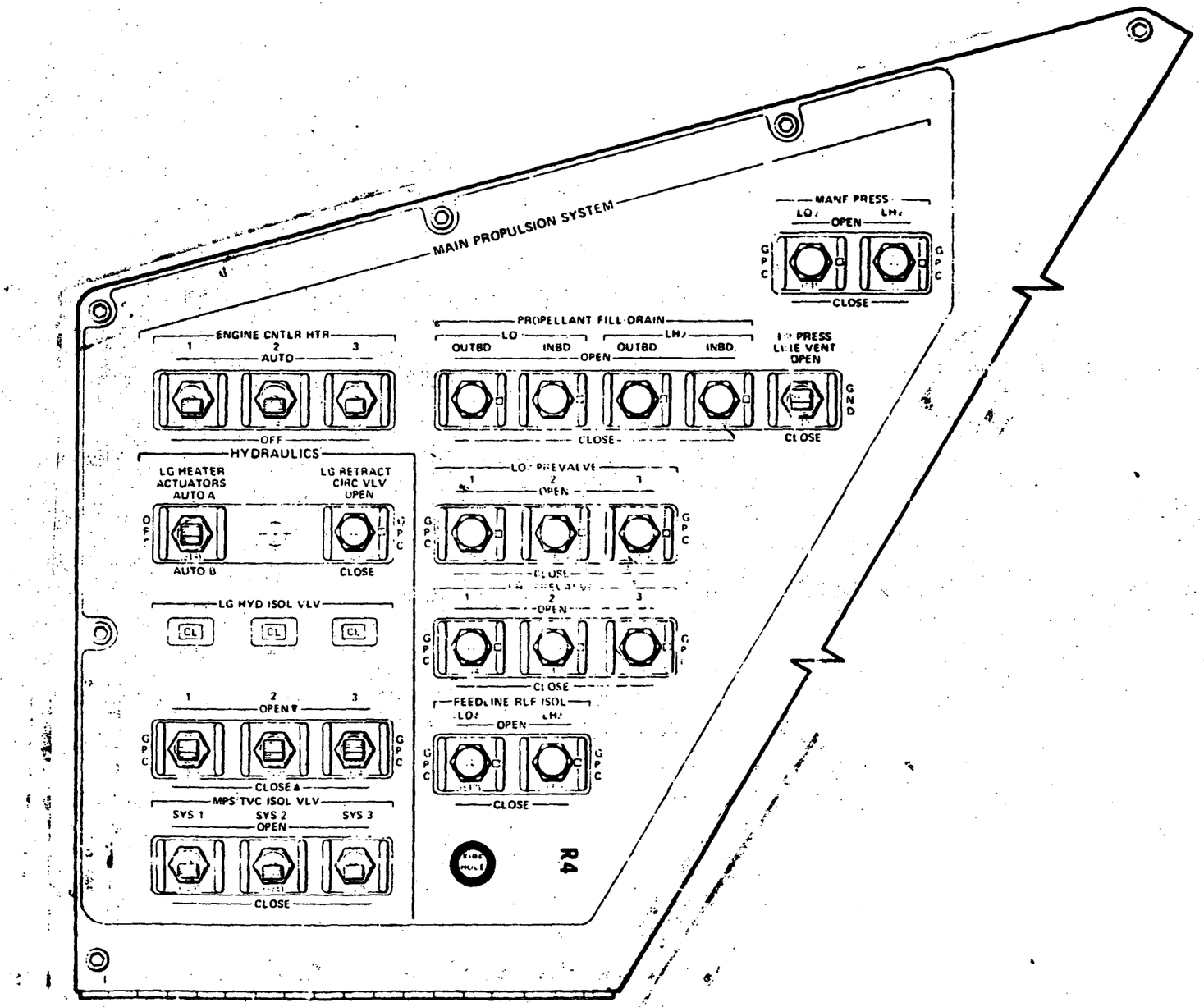
PANEL 016
017
019


POWER DISTRIBUTION
R1
CONTROL BUS PWR
ESS BUS SOURCE
FC/MAIN BUS
MN BUS TIE
INV PWR
INV/AC BUS
AC CONTR
AC BUS SNSR
MN A RESET
MN B/C ON
ESS 1BC
FC 1 ON
FC
A ON
A ON
OFF
MN A
MN B RESET
MN C/A ON
ESS 2CA
FC2 ON
FC 2
B ON
B ON
MN B
MN C RESET
MN A/B ON
LSS 3AB
FC 3 ON
FC 3
C ON
C ON
MN C
INV 1
INV 2
INV 3
AC 1
AC 2
AC 3
ON
OFF
1 ON
2 ON
3 ON
ØA
ØB
ØC
1 AUTO TRIP
2 AUTO TRIP
3 AUTO TRIP
MONITOR
PRI MN B ON
PRI FC3 ON
PRI MN C ON
AUX ON
AFT MN B ON
AFT MN C ON
CABIN MN A
MN A
MN B
PAYLOAD OFF
CABIN PL
PRI PL
AUX PL A
AUX PL B
AFT PL B
AFT PL C

PANEL R1


MPS
PRPLT DUMP SEQUENCE
LO2
LH2
START
GPC
(S1)
(S7)
STOP
ENGINE POWER
1 AC1
2 AC2
3 AC3
ON
OFF
FIRE / MOIF
R2
He CROSSOVER
OPEN
CLOSE
He ISOLATION
APU / HYD
READY TO START
APU CONTROL
START/RUN
START ORIDE/RUN
APU SPEED SELECT
HIGH
NORM
APU AUTO SHUT DOWN ENABLE
INHIBIT
LH2 ULLAGE PRESS AUTO
OPEN
PRSU
BOILER HYD BYPASS
BYPASS
HYD MAIN PUMP PRESS
LOW
HYD CIRC PUMPS
APU CNTLR PWR
APU FUEL TK VLV
BOILER CNTLR
BOILER CNTLR PWR HTR
ET UMBILICAL DOOR
CENTERLINE LATCH
LEFT
RIGHT
DOOR
LATCH
STO
OP
LAT
MODE GPC
GND
RELEASE
MAN
STOW
CLOSE
BOILER N2 SUPPLY

PANEL R2


MAIN PROPULSION SYSTEM
MANF PRESS
LO2
LH2
OPEN
GPC
CLOSE
ENGINE CNTLR HTR
1
2
3
AUTO
OFF
PROPELLANT FILL DRAIN
LO2
OUTBD
INBD
LH2
OUTBD
INBD
OPEN
CLOSE
P PRESS LINE VENT
OPEN
CLOSE
HYDRAULICS
LG HEATER ACTUATORS AUTO A
AUTO B
LG RETRACT CIRC VLV OPEN
CLOSE
LO2 PREVALVE
1
2
3
OPEN
CLOSE
LG HYD ISOL VLV
CL
MPS TVC ISOL VLV
SYS 1
SYS 2
SYS 3
OPEN
CLOSE
FEEDLINE RLF ISOL
LO2
LH2
OPEN
CLOSE
R4

PANEL R4

E-2625-1(A)

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	~~CORE LOC.~~ SPD PART NO	SEE SKETCH	NO PT AT THIS POSITION	~~COMMENTS~~ DESCRIPTION
	FCS CHANNEL		OVERRIDE	⊛-635			# AUTO	ON -#OFF -ON
S1	1	12	OFF					
			OVERRIDE				# AUTO	
S2	2	12	OFF					
			OVERRIDE				# AUTO	
S3	3	12	OFF					
			OVERRIDE				# AUTO	
S4	4	12	OFF					
	MAIN ENGINES		ENABLE	⊛-6103	1003370-01		AUTO	ON-OFF-ON
S5	LIMIT SHUT DN	3	INHIBIT					
			* UP	⊛-			#AUTO/OFF	*ON -#OFF -*ON
S9	BODY FLAP	9	* DOWN					
			* L	⊛-6105	1003370-04		[N]	*ON-OFF-*ON
S10	ROLL TRIM	4	* R					
			* DOWN				[N]	
S11	PITCH TRIM	4	* UP					
S7 ~~S6~~	MAIN ENGINES SHUT DOWN 2	PUSH-BUTTON						
S6 ~~S7~~	1							
S8	3							

#=LOCKED POSITION ⊛=ME452-0102

*=MOM

[N]=NULL POSITION REV Ⓐ - S7 & S6 INTERCHANGED

REF. DWG. NO.	REV.	PAGE
VL 70-730102	2	2
35 V73 A3A2 C3A2	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MDW Quinlan	
B			
C			

REL. DATE 3/26/76

ENG. MDW Quinlan

APPR.

TITLE

PANEL

C3A2

1 OF 1

F-2625-1-A

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	CORE LOC. SPD PART NO	SEE SKETCH	NO DI AT THIS POSITION	~~COMMENTS~~ DESCRIPTION
	BATTERY		ON	⊛-6101	1003370-02			ON-ON
S1	1	1	OFF	—	—			
			ON					
S2	2	1	OFF	—	—			
			ON					
S3	3	1	OFF	—	—			
			ON					
S4	4	1	OFF	—	—			
	CAUTION/WARNING		* READ	⊛-6105	1003370-04		[N]	*ON-OFF-*ON
S6	MEMORY	4	* CLEAR					
			ACK	⊛-6103	1003370-01		NORM	
S7	MODE	3	ASCENT					
	AIR DATA PROBE		DEPLOY HEAT	⊛			DEPLOY	ON-OFF-#ON
S9	LEFT	11	#STOW					
			DEPLOY HEAT				DEPLOY	
S9	RIGHT	11	#STOW					
		LIFT LOCK TYPE 12	ALL				CRITICAL	ON-#OFF-ON
S13	UPLINK BLOCK		NONE	—	—			
			ON	⊛6101	1003370-02			ON-ON
S14	MASTER DFI POWER	1	OFF	—	—			
	EMERGENCY		ON/OFF					
S15	LIGHTING	1	OFF/ON	—	—			

*= MOM
[N] = Null Position
# = Locked Position
⊛ ME452-0102

REV (A) - ADDED S15 & SW NO'S

REF. DWG. NO.	REV.	PAGE
VL70-730101	I	2
35V73A3AS	1272-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MWLamb	
B			
C			

REL. DATE 3/26/76
ENG. MW Lamb
APPR.

TITLE
PANEL
C3AS

F-2625-1-A

SWITCH STINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	~~CORE LOC.~~ SERIAL NO	SEE SKETCH	NO OF AT THIS POSITION	~~COMMENTS~~ DESCRIPTION
	DFI RECORDERS							
S10	PCM	3	CONTINOUS RECORD	⊛-6103	1003370-01		HIGH SAMPLE	ON-OFF-ON
			LOW SAMPLE					
S11	WIDE BAND ASCENT	1	CONTINOUS RECORD	⊛-6101	1003370-02			ON-ON
			STBY	—	—			
S12	WIDE BAND MISSION	1	CONTINOUS RECORD					
			STBY					

⊛ = ME 452-0102

REV Ⓐ - ADDED SW NO'S

REF. DWG. NO.	REV.	PAGE
V2 70-73 0102		
35 V 73 A3A5		

REV.	DATE	ENG.	APPR.
A	4/15/76	MW Quinlan	
B			
C			

REL. DATE 3/26/76

ENG. MW Quinlan

APPR.

TITLE

PANEL C3A5

SIMULATOR SMS

TYPE OF EQUIPMENT	NAME	~~DISPOSITION~~ SPEC NO	~~COMMENTS~~ SPD PART NO	DESCRIPTION
EVENT INDICATORS	DFI RECORDER: TAPE MOTION PCM DS1	MC432-0222		2 STATE GRAY – B. P.
	DS2 WIDE BAND ASCENT	–		
	DS3 WIDE BAND MISSION	–		

REV (A) - ADD DS NO'S

REF. DWG. NO.	REV.	PAGE
VL 70-73 0102	2	2
35V 73 A3 A5	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	M W Winder	
B			
C			

REL. DATE 3/26/76

ENG. M W Winder

APPR.

TITLE: PANEL C3 A5

PANEL C3 A5 SIMULATOR SMS PAGE 3 OF 3

F-2625-1-B

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	~~CORE LOC.~~ SPD PART NO	SEE SKETCH	NO OF AT THIS POSITION	COMMENTS DESCRIPTION
S1	SRB SEPARATION	1	MAN AUTO	⊛-6101	1003370-02			ON-ON
			AUTO	—	—			
S3	ET SEPARATION	10	MAN	⊛-6252				ON-#ON
			#AUTO	—	—			
S5	YAW TRIM	4	* L	⊛-6105	1003370-04		(N)	*ON-OFF-*ON
			* R					
S6	AUDIO CENTER	3	1	⊛-6103	1003370-01		(N)	ON-OFF-ON
			2					
S7	O1 PCMMU PWR	3	1				(N)	
			2					
S8	FORMAT	3	GPC PROGRAM				FIXED	
S9	S-BAND FM CONTROL	1	~~CMD UPLINK~~	⊛-6101	1003370-02			ON-ON
			PANEL	—	—			
S2	SRB SEPARATION SEP	PUSH BUTTON		ME452-0061				
				—				
S4	ET SEPARATION SEP	↓		↓				
				—				

= LOCKED POSITION ⊛=ME452-0102
* = MOM
(N) = NULL

REV (A) - S9 NOMENCLATURE

REF. DWG. NO.	REV.	PAGE
VL70-730102	2	2
35V73A3A7	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MowRenter	
B			
C			

REL. DATE 3/26/76
ENG. MowRenter
APPR.

TITLE
PANEL
C3A7

PANEL C3A7 SIMULATOR SMS PAGE 1 OF 2

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	DISPOSITION SPEC. NO.		COMMENTS
INSTRUMENT (3AT)	MPS PRESSURE Pc M1	MC432-0832 -		Pc 1, 2 & 3 REV (A)
	ENG MANF M2	-		LO2 & LH2 CHANGED FROM X10 SCALE TO FULL SCALE
	ULLAGE M3	-		LO2 & LH2
	HELIUM M4	-		PNEU, 1, 2 & 3
ANNUNCIATOR	MAIN ENGINE STATUS 3/3 XDS3	MC434-0075 -		DOUBLE LENSE
"	1/1 XDS1	-		DOUBLE LENSE
" (3A7)	3/3 XDS3	-		DOUBLE LENSE
" (3A5)	SM ALERT XDS1	MEV52-0061 - 1144	1003393-06	SINGLE LENSE
READOUT	EVENT TIME M4	MC456-0053 -0001		REV (A)
INSTRUMENT	OMS PRESS Pc M1	MC432-0832 -		REV (A) LEFT & RIGHT SCALE CHANGED FROM 200 PSIA TO 150%
" (3A5)	N2 He TANK M2	-		N2 He TANK - LEFT KIT & RIGHT

REV (A) - XDS1 - XDS2 INTERCHANGED

REF. DWG. NO.	REV.	PAGE
VL70-730102-1		

REV.	DATE	ENG.	APPR.
A	4/15/76		
B			
C			

REL. DATE 3/29/76
ENG.
APPR.

TITLE: PANEL F7

PANEL F7 SIMULATOR MS- PAGE 1 OF 3

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	DISPOSITION Spec. NO.	SPD P/N	COMMENTS DESCRIPTION
INSTRUMENT (7A8)	ACCELEROMETER M3	MC432-0219	LP 205 8917	ACCEL G UNITS
" (7A3)	SPI	MC432-0221	LP 205 8905-01	ELEVONS, BODY FLAP, RUDDER, AILERON, & SPEED BRAKE
ANNUNCIATOR (7A2)	CAUTION & WARNING	MC434-0069		SOME LEGENDS CHANGED & LIGHT LABELED MATRIX
DU 1 (7A1)	CRT 1 DISPLAY UNIT	MC615-0006		GFE
DU 2 (7A4)	CRT 2 DISPLAY UNIT	↓		GFE
DU 3 (7A6)	CRT 3 DISPLAY UNIT	↓		GFE

REV A - LEGENDS ADDED & CHANGED C & W

REF. DWG. NO.	REV.	PAGE
VL70-730102-1		

REV.	DATE	ENG.	APPR.
A	4/15/76	MW Anderson	
B			
C			

REL. DATE 3/29/76
ENG
APPR

TITLE: PANEL F7

PANEL F7 SIMULATOR SMS PAGE 2 OF 3

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	DISPOSITION SPEC. NO.	COMMENTS SPEC. NO.	COMMENTS DESCRIPTION
INSTRUMENT (M1)	HYDRAULIC PRESSURE M1	MC432-0232		PRESSURE 1,2&3
	QUANTITY M2	—		QUANTITY 1,2&3
	APU FUEL/H2O QTY M3	—		QTY 1,2&3
INSTRUMENT (M4)	M4 EGT-FUEL PRESS-OIL TEMP	—		
CONTROL	ROTATIONAL HAND CONTROLLER	MC621-0043		GFE

REV (A) - SCALING CHANGED M4

REF. DWG. NO.	REV.	PAGE
VL70-730102	T	

REV.	DATE	ENG.	APPR.
A	4/15/76	MWEnds	
B			
C			

REL. DATE 3/29/76
ENG
APPR

TITLE: PANEL F8

PANEL F8 SIMULATOR SMS PAGE 4 OF 4

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	DISPOSITION SPEC. NO.	COMMENTS GSFC P/N	COMMENTS DESCRIPTION
SWITCH-ROTARY	ESS SIGNAL STRENGTH 1BC	ME 452-0093-5023	1003312-03	2 POLE, 9 POS.
	2CA			S2
	3AB			
	MAIN A			
	B (SAME 9 POS SW)			
	C			
	FUEL CELL - VOLT/AMPS 1			
	2			
	3			
METER	M2 DC VOLTS	MC432-0237 -0001	2058911-01	20 TO 45 VOLTS M2
METER	M3 DC AMPS/SIG STR	-0003	205 89 11 -03	0 TO 500 AMPS M3

REV (A) - M3 - DUAL FUNCTION

REF. DWG. NO.	REV.	PAGE
VL70-730102-1		

REV.	DATE	ENG.	APPR.
A	4/15/76	DFW Rinker	
B			
C			

REL. DATE 3/29/76
ENG
APPR.

TITLE: PANEL F9

PANEL F9 SIMULATOR SMS PAGE 2 OF 2

T-2025-171

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	PROC PART NO.	SPD NO.	DESC
10 LT MAT.	SMOKE DET. A CABIN	MC434-0073		FIRE WARNING 10 LIGHT MATRIX
	L FLT DECK			
	AV BA 1			
	2			
	3			
REV Ⓐ	B PAYLOAD			
	R FLT DECK			
	AV BAY 1			
	2			
	3			

REF. DWG. NO.	REV.	PAGE
VL70-730102 31V73A1A1	1	1

REV.	DATE	ENG.	APPR.
A	4/15/76	[illegible]	
B			
C			

REL. DATE 3/30/76

ENG. TF Hebert

APPR.

TITLE: PNL L1A1

PANEL L1A1 SIMULATOR SMS PAGE 3 OF 3

F-2625-11

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	~~DESIGNATION~~ PROC. SPEC. NO.	SPD. PART NO.	COMMENTS
EVENT IND. DS1	CABIN RELIEF A	MC432-0222-		3 TYPE STATE 2A; LEGEND OP-BP-CL ~~OP-CL~~ (A)
DS2	↓ B			
DS3	CABIN VENT VENT ISOL			
DS4	↓ VENT			
DS5	ATM PRESS CNTRL O_2 SYS1 SUPPLY			2 STATE 2A OP-CL (B)
DS6	N_2			3 STATE 3A OP-B.P.-CL
DS7	↓ ↓ REG INLET			
DS8	O_2 EMERG ↓			
DS9	↓ SYS 2 SUPPLY			2STATE 2A OP-CL (C)
DS10	N_2 ↓			3STATE 3A OP BP-CL
DS11	↓ ↓ ↓ REG. INLET			

REV (A) - DS1 - DS5 & DS9 - DS11

REF. DWG. NO.	REV.	PAGE
VL70-730102 31V73A2A1	1	1

REV.	DATE	ENG.	APPR.
A	4/14/76	TTW Gunder	
B			
C			

REL. DATE 3/30/76
ENG. TF Orlent
APPR.

TITLE: PNL L2A1

PANEL L2 A1 SIMULATOR SMS PAGE 4 OF 4

CKT. NO. BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	ROC. PART NO.	SPD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
FREON LOOP 2 PUMP B AC1ØC	CB 41		MC454-0026	1003396-01		CBs TYP POPPABLE	
FREON FLOW PROP ✗ 1 AC2ØA	42						
SIG COND ✗ 1 AC2ØB	43						
FLOW PROP + 2 AC3ØA	45 ~~44~~						
SIG COND + 2 AC3ØB	46 ~~45~~						
IMV FAN A AC1 Ø A	48 ~~46~~						
AC1 Ø B	49 ~~47~~						
AC1 ØC	50 ~~48~~						

REV Ⓐ - ENTIRE PG.

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A	4/14/76	[illegible]	
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REL. DATE 3/30/76

ENG. T. F. Hulet

APPR.

TITLE CB's PNL L4

PANEL L4 SIMULATOR S/15

CIR BREAKER NAME		A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	ROC PART NO.	SPD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
IMU FAN B	AC2 ØA	51 CB 49		MC 454-0026	1003396-01		CBS TYP POPPABLE	
	AC2 ØB	2 50						
	AC2 ØC	3 51						
FAN C	AC3 ØA	4 52						
	AC3 ØB	5 53						
	AC3 ØC	6 54						
HYD QTY - 1	AC2 ØB	7 55						
TACAN 1	AC1 ØC	58 56						

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ENG. T.F. Hebert

APPR.

TITLE: CB'S PANEL 4

PANEL L4 SIMULATOR SMS

CIRCUIT BREAKER LISTING

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	ROC PART NO.	SPD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
LG SENSR 2 ~~A~~ AC2ΦA	CB 59 ~~57~~		MC454-0026	1003396-01			
HYD QTY 2 AC2ΦB	60 ~~58~~						
TACAN 2 AC2ΦC	61 ~~59~~						
LG SENSR 1 ~~B~~ AC3ΦA	62 ~~60~~						
HYD QTY 3 AC3ΦB	63 ~~61~~						
TACAN 3 AC3ΦC	64 ~~62~~						
FUEL CELL PUMPS AC1ΦA	65 ~~63~~						
AC1ΦB	66 ~~64~~						

REV (A) - CB' NO's 2 CB62 & CB59

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ENG. T.E. Herbert

APPR.

TITLE CB's PNL L4

PANEL L4 SIMULATOR SIMS

CIR. BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	EXISTING ROC PART NO.	EXISTING SPD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
FUEL CELL 1 PUMPS AC1 ΦC	CB ~~65~~ 67		MC-454-0026	1003396-01			
2 AC2 ΦA	~~66~~ 68						
AC2 ΦB	~~67~~ 69						
AC2 ΦC	~~68~~ 70						
3 AC3 ΦA	~~69~~ 71						
AC3 ΦB	~~70~~ 72						
AC3 ΦC	~~71~~ 73						
HUMIDITY SEPARATOR ~~HUM. SEP.~~ A AC1 ΦA	~~70~~ 74						

REV (A) - CB NO'S

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ENG. T.F. [illegible]

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TITLE: CB'S PNL L4

CIRCUIT BREAKER NAME	CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	PART NO.	SHD NO	FEEDER BUS	SEE SKETCH	
KU BAND ~~A~~ ~~AC1 ΦB~~	~~CB 81~~		MC454-0026	1003396-01		CB TYP POPPABLE	
~~AC1 ΦC~~	~~82~~						
B 3Φ AC2 ~~4A~~	83						
~~AC2 ΦB~~	~~84~~						
~~AC2 ΦC~~	~~85~~						
MAIN ENG 1 PWR AC1 ΦA	84 ~~86~~						
AC1 ΦB	85 ~~87~~						
AC1 ΦC	86 ~~88~~						

REV Ⓐ - ENTIRE PG.

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ENG. TF Gilbert

APPR.

TITLE: CB's PNL L4

PANEL L4 SIMULATOR SMS

CIRC	BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	ATDC PART NO.	SPD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
	MAIN ENG 1 PWR AC2 ΦA	CB 87 (8)		MC454-0026	1003396-01		CB TYP POPPABLE	
	AC2 ΦB	88 90						
	AC2 ΦC	89 91						
3	AC3 ΦA	90 92						
	AC3 ΦB	91 93						
	AC3 ΦC	92 94						
	H_2O CNTLR 2	93 95						
	CABIN AIR S/C	94 96						

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ENG. J F. Hibert

APPR.

TITLE: CB's PNL L4

PANEL L4 SIMULATOR S11S PAGE 12 OF 17

CIRC BREAKER NAME	A/C CB NO.	C.B. COVERAGE AND PART NO. (IF POPPABLE)	REC PART NO.	SRD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
CABIN FAN B AC2 ΦA	CB 95 ~~97~~		MC 454-0026	1003396-01		CB TYP POPPABLE	
AC2 ΦB	96 ~~98~~						
AC2 ΦC	97 ~~99~~						
A AC3 ΦA	98 ~~100~~						
AC3 ΦB	99 ~~101~~						
AC3 ΦC	100 ~~102~~						
LGHTING PANEL L/CTLR	101 ~~103~~						
OVHD	103 ~~104~~						

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ENG. TF O'Herlevt

APPR.

TITLE: CB's PNL L4

PANEL L4 SIMULATOR SMS

CIR. BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	RCC PART NO.	S/D NO.	FEEDER BUS	SEE SKETCH	NTS
LGHTNG INST OS	CB 103		MC 454-0026	CO 1003396-01		CB TYP POPPABLE	Deleted DTD.6
~~ANNUN LIOVHD~~	~~106~~						
PANEL R	104 ~~107~~						
NUMERICS							Deletal DTD.6
COAS							Deleted DTD.6
PANEL MS	106 ~~110~~						
OS	107						Deleted DTD.6
MAIN ENG 3 PWR ACIRA	108 ~~112~~						

REV Ⓐ - ENTIRE PG.

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ENG. JF Herbert

APPR.

TITLE CB's PNL L4

PANEL L4 SIMULATOR SMS PAGE 14 OF 17

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	VOC PART NO.	SWD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
MAIN ENG 3 PWR ACI ϕB	109 CB ~~H3~~		MC454--0026	1003396-01		CB TYP POPPABLE	
ACI ϕC	110 ~~H4~~						
2 AC2 ϕA	111 ~~H5~~						
AC2ϕB	112 ~~H6~~						
AC2ϕC	113 ~~H7~~						
AC3ϕA	114 ~~H8~~						
AC3ϕB	115 ~~H9~~						
AC3ϕC	116 ~~H20~~						

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ENG. TF Olbert

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TITLE CB's PNL L4

PANEL L4 SIMULATOR SMS PAGE 15 OF 17

CIR. BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	T.C. ROC PART NO.	SPD PART NO.	FEEDER BUS	SEE SKETCH	COMMENTS
CABIN T CNTLR 2	117 CB ~~121~~		MC 454-0026	1003396-01		CB TYP POPPABLE	
AV BAY 2 S/C	118 ~~122~~						
CABIN T CNTLR 1	119 ~~123~~						
AV BAY 3 S/C	120 ~~124~~						
H_2O CNTLR 1	121 ~~125~~						
AV BAY 1 S/C	122 ~~126~~						
~~ANNUN R CTR~~	~~127~~						
NUMERICS ~~NUM~~ FWD	123 ~~128~~						

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ENG. JF Abbott

APPR.

TITLE: CB's PNL L4

PANEL L4 SIMULATOR S&S

SY2629-4-8

CIRCUIT BREAKER LISTING

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	ROC PART NO.	SPD NO.	FEEDER BUS	SEE SKETCH	COMMENTS
INST OVHD	124 CB ~~129~~		MC454-0026	1003396-01		CB TYP POPPABLE	
L/CTR	125 CB ~~130~~						
R	126 CB ~~131~~						

REV (A) - CB NO'S

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ENG. TF Thibert

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TITLE: L4 CB's

PANEL L4 SIMULATOR SMS

CIRCUIT BREAKER NAME	A.C. C.B. NO.	C.B. LOCATION AND SEQ. NO. (IF APPLICABLE)	MCC	SIZE	FEEDER NO.	SEE NOTE	AMPS
RAD CNTLR 1	CB44		MC454-0006	1003396-0			
RAD CNTLR 2	CB47		↓	↓			

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ENG. MW Quinlan

APPR.

TITLE

PANEL L4
NEW CB'S

PANEL L4 SIMULATOR SMS PAGE ____ OF ____

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME		~~DISPOSITION~~ PPN	COMMENTS SPN	
ROTARY SW	S_1	CRYO TK SELECT	ME452-0093-5025	1003512-01	4 POS
METER	M_1	CRYO O_2 ~~TK~~ HTR ~~TEMP~~ ASSY TEMP	MC 432-0238-		1 SCALE
METER	M_2	CRYO O_2 PRESS QTY			2 SCALE
METER	M_3	CRYO H_2 PRESS QTY	-0003		2 SCALE
METER	M_4	FUEL CELL STACK TEMP	-0005		1 SCALE

REV Ⓐ – M1 & M2 SCALE CHANGE

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TITLE: PANEL 02 OVHD

02

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	CHANNEL PPN	CORE LOG. SPN	SEE SKETCH	No. OF THIS POSITION	COMMENTS
12	AVNI BUS SELECT L/OVD	3	MNA	ⓧ 6103	1003370-01		OFF	"ON-OFF-ON"
			MNB					
13	AVNI BUS SELECT P/CTR	3	MNB	Ⓧ 6103	-01		OFF	↓
			MNC					
14	LAMP TEST	4	✱ L/CTR	Ⓧ 6105	-04			See DTP.6
			✱ C/OVHD					✱ON-OFF-ON✱"
15	MASTER TIMING UNIT	3	OSC 1	Ⓧ 6109	-01		AUTO	"ON-OFF-ON"
			OSC 2					
17 ~~16~~	DISPLAY ELECTRONICS UNIT 1	2	✱ LOAD	Ⓧ 6102	-05		OFF	"ON✱-OFF"
18 ~~17~~	2	2	✱ LOAD	↓	-05		OFF	↓
19 ~~18~~	3	2	✱ LOAD		-05		OFF	
20 ~~19~~	4	2	✱ LOAD		-05		OFF	
16 ~~20~~	MDM PL1	1	ON	Ⓧ 6101	-02		OFF	ON ON"
22 ~~21~~	MDM FLT CRT AFT FA1	1	ON	↓	-02		OFF	
23 ~~22~~	" FA2	1	ON		-02		OFF	

✱ MOMENTARY
Ⓧ ME 452-0102-

3 - ON-OFF-ON 2 - ✱ON-OFF-ON 1 - ON-ON
4 - ✱ON-OFF-ON✱

REV Ⓐ - SW NO'S

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ENG.
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TITLE
PANEL D6 DVHD

PANEL D6 — SIMULATOR SMS — PAGE 2 OF

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	PPN	SPN	SEE SKETCH	ND DI AT THIS POSITION	COMMENTS
24 ~~23~~	MDM FLT CRT AFT FA3	1	ON	Ⓧ 6101	1003870-02		OFF	"DN-ON"
25 ~~24~~	" FA4	1	ON				OFF	
21 ~~25~~	MDM PL2	1	ON				OFF	
27 ~~26~~	MDM FLT CRT AFT FF1	1	ON				OFF	
28 ~~27~~	" FF2	1	ON				OFF	
29 ~~28~~	" FF3	1	ON				OFF	
30 ~~29~~	" FF4	1	ON				OFF	
31 ~~30~~	GPC POWER 1	1	ON				OFF	
32 ~~31~~	" 2	1	ON				OFF	
33 ~~32~~	" 3	1	ON				OFF	
34 ~~33~~	" 4	1	ON				OFF	

Ⓧ ME 452-0102-
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A	4/15/76	Mauldin	
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TITLE
PANEL O6 OVHD

PANEL O6 SIMULATOR SMS PAGE 2 OF

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	PPN	SPN	SEE SKETCH	NO BIT AT THIS POSITION	COMMENTS
35 ~~34~~	GPC POWER 6	1	ON	Ⓧ 6101	1003390-02		OFF	"ON-ON"
36 ~~35~~	GPC OUTPUT 1	1	NORMAL				TERMINATE	
37 ~~36~~	" 2	1	NORMAL				TERMINATE	
38 ~~37~~	" 3	1	NORMAL				TERMINATE	
39 ~~38~~	" 4	1	NORMAL				TERMINATE	
40 ~~39~~	" 6	1	NORMAL				TERMINATE	
46 ~~45~~	IPL SOURCE	3	MMU 1 MMU 2	Ⓧ -6103	1003390-01		OFF	ON-OFF-ON
47 ~~46~~	GPC MODE 1	11	#RUN HALT				STBY	#-OFF-ON
48 ~~47~~	" 2	11	#RUN HALT				STBY	
49 ~~48~~	" 3	11	#RUN HALT				STBY	
50 ~~49~~	" 4	11	#RUN HALT				STBY	

REV Ⓐ - SW NO'S AND SW 35 + SW 40

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ENG. Joe
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TITLE
PANEL O6 OVHD

PANEL O6 SIMULATOR SMS PAGE 1 OF

SWITCH SETTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMEN-CLATURE	PPN	SPN	SEE SKETCH	POSITION	COMMENTS
51 ~~50~~	GPC MODE 5	11	#RUN HALT				STBY	#-OFF-ON
52 ~~51~~	ANNUN INTENSITY	1	BRT	Ⓧ6101	1003370-02		DIM	See DTD.6
26	PL3	1	ON OFF	—	—		OFF	ON-ON
	LEFT SEAT/CNTR CNSL FLOOD	3	SEAT CTR CNSL	Ⓧ6103	1003370-01		OFF	ON-OFF-ON

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			C				APPR.	

PANEL 06 SIMULATOR SMS PAGE 5 OF

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MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME		~~DISPOSITION~~ PPN	SPN	COMMENTS
EVENT INDICATOR	DS4	GPR POWER OUTPUT 2	MC 432-0022		2-STATE BP
EI	DS 5	3			2-STATE BP
EI	DS 6	4			2-STATE BP
EI	DS 7	5			2-STATE BP
EI	DS 8	INITIAL PROGRAM LOAD 1			3-STATE RUN
EI	DS 9	IPL MODE 2			3-STATE RUN
EI	DS 10	IPL MODE 3			3-STATE RUN
EI	DS 11	IPL MODE 4			3-STATE RUN
EI	DS 12	IPL MODE 5			3-STATE RUN
PUSH BUTTON LT	S41 ~~S40~~	IPL 1 RUN	ME 452-0061		?
PB LT	S42 ~~S41~~	IPL 2 RUN			

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TITLE: PANEL 06 OVHD

PANEL 06 SIMULATOR SMS PAGE 2 OF

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MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	~~DISPOSITION~~ PPN	SPN	COMMENTS
TRANSFORMER	T1 LIGHTING LEFT OVERHEAD PANEL	MC 446-0034		~~P&T~~ LIGHTING
TRANS.	T4 ~~T2~~ LEFT CENTER PANEL			~~P&T~~
TRANS.	T3 LEFT INSTRUMENT			~~P&T~~
TRANS.	T2 ~~T4~~ OVHD INST ~~LT GLARESHIELD FLOOD~~			~~P&T~~
ROTARY SW	S6 UHF MODE SELECT	ME452-0093 ~~5093~~		5-POS
SW ~~EL MTG PNT~~	S11 ANNUNCIATOR INTENSITY	ME444-0059		LIGHTING
LIGHT	FLOOD LIGHT ⇩ RELATED			
? POT ~~TRANS.~~	— LT CTR FLOOD			NO. NOT ON DWG
EVENT INDICATOR	DS1 STAR TRACKER DOOR 1	MC432-0222		3 STATE - OP
EI	DS2 STAR TRACKER DOOR 2			3 STATE - OP
EI	DS3 GPI POWER OUTPUT 1			2 STATE - BP

REV Ⓐ - T1 - T4

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REL. DATE 4/29/76
ENG. JAL
APPR.

TITLE: PANEL 06 OVHD

F-2825-11

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME		~~DESCRIPTION~~ PDN	COMMENTS SPN	
PUSH BUTTON LT	S43 ~~S42~~	IPL 3 RUN	ME45A-0061		
PB LT	S44 ~~S43~~	IPL 4 RUN	↓		
PB LT	S45 ~~S44~~	IPL 5 RUN			

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ENG. JPR

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TITLE: PANEL 06 OVHD

06

SIMULATOR SMS

[illegible] SWITCH NAME	[illegible] SWITCH	[illegible] CLATURE	[illegible]	[illegible] LOC.	[illegible]	NO DI THIS LOCATION	[illegible]
[illegible]	3	SEAT CTR CNSL				OFF	

REF. DWG. NO.	REV.	PAGE	REV.	DATE	ENG.	APPR.		TITLE
UL70-730107 35973 AB			A				REL. DATE 4/14/76	PANEL 08 NEW
			B				ENG. [illegible signature]	
			C				APPR.	

PANEL ______ SIMULATOR ______ PAGE ____ OF ____

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME		~~DISPOSITION~~ PPN	COMMENTS SPN	
FLOOD LIGHT		FLOOD LIGHT			2 FLOODS
POT ~~TRANSFORMER~~	R2	SEAT CTR CNSL RIGHT CTR FLOOD			NO. NOT ON DWG LIGHT
TRANS.	T4	NUMERIC LIGHTING	MC 446-0034-5001		LIGHTING ~~DIST~~ REG.
↓	T1	OVERHEAD RIGHT PANEL LTG	↓		↓
↓	T_3	RIGHT INSTRUMENT LTG	↓		↓
↓	T2	RIGHT PANEL ~~QUAD INSTRUMENT LTG~~	↓		↓
RHEOSTAT	R1	RIGHT GLARE-FIELD FLOOD LTG	ME444-0059		↓
DIGI-SW	S11	MLS CHANNEL SELECT	MC 452-0134-0004		3-digits
EVENT INDICATOR	DS1	OMS KIT TANK ISOLATION A	MC492-0222		3-STATE OP
EI	DS2	↓ ↓ B	↓		↓
EI	DS3	FWD RCS He Oxid	↓		↓

REV Ⓐ - R2 - T1 - T4

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REL. DATE 3/29/76

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TITLE: PANEL OF QUAD

PANEL 2

SIMULATOR V2

SWITCH FINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMEN-CLATURE	DRAWING PPN	GEOG LOC. SPN	SEE SKETCH	NO DI AT THIS POSITION	COMMENTS
1	AA	3	TR	Ⓧ-6103	1003370-01		RCV	"ON-OFF-ON"
			OFF					
2	AG 1	3	TR				RCV	
			OFF					
3	AG 2	3	TR				RCV	
			OFF					
4	ICOM A	3	TR				RCV	
			OFF					
5	ICOM B	3	TR				RCV	
			OFF					
6	POWER	3	AUD/TONE				AUD	
			OFF	↓	↓			↓
8	PAGE	2 X	*ON	Ⓧ-6101	1003370-05		OFF	"*ON-ON"

REV Ⓐ - SW 9 - SW. TYPE.

Ⓧ ME 452-0102-

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TITLE: RIGHT AUDIO PANEL 09 OVHD

PANEL 09 SIMULATOR SMS PAGE ____ OF ____

CIRCO. BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	GFE PPN	SPN	FEEDER BUS	SKETCH	CONTS
Ess IBC	1		[redacted] 1615F-0026	1003996-01			
C/W A			[redacted]				
MN A CONTR	2						
AC1 SNSR	3						
MTU A	4						
~~FLOOD LT GLARESHIELD~~	~~5~~						
~~LDG GEAR ARM DN RESET~~	~~6~~						
CRYO CNTLR O_2 TK2	7						
CRYO CNTLR H_2 TK2	8				?		

REV (A) - DELETED SW. 5 & 6

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A13	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	[redacted]	
B			
C			

REL. DATE 3/29/76

ENG [redacted]

APPR.

TITLE

PANEL O13 OVHD

PANEL O13 SIMULATOR SMS PAGE 1 OF

CIRC. BREAKER NAME	A/C CB NO.	C.B. MANUFACTURER AND PART NO. (IF POPPABLE)	GSE P/N	GSE S/N	FEEDER BUS	SEE SKETCH	COMMENTS
ESS 2CA C/W B	9		MC4S4-0026	1009996-01			
MN B CONTRL	10						
AC 2 SNSR	11						
MTU B	12						
~~FLOOD RT GLARESHIELD~~	~~13~~						
CRYO CNTLR O_2 TK1	14						
CRYO CNTLR H_2 TK1	15						
ESS 3AB MNC CONTR	16				7		

REV (A) – DELETED SW 13

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A13		

REV.	DATE	ENG.	APPR.
A	4/14/76	[illegible]	
B			
C			

REL. DATE 3/29/76

ENG. [signature]

APPR. _____

TITLE: PANEL 013 OVHD

PANEL C13 SIMULATOR SMS PAGE 2 OF _____

CIRCUIT BREAKER LISTING

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	CONTROL SPN	CORE LOG. SPN	FEEDER BUS	SEE SKETCH	COMMENTS
ESS 3AB AC 3 SNSR	17		MC454-0026	1003996-01			
GPC STATUS	18						
~~FLOOD 005~~	~~19~~						
ESS 1BC Cryo QTY O_2 TK_2	20 ℓ						Per DTD.6
ESS 1BC Cryo QTY H_2 TK_2	21 ℓ						Per DTD.6
ESS 2CA Cryo QTY O_2 TK_1	22 ℓ						Per DTD.6
ESS 2CA Cryo QTY H_2 TK_1	23 ℓ						Per DTD.6

REV Ⓐ - DELETED 19 ADDED SW NO 20-23

REF. DWG. NO.	REV.	PAGE
VL 70-730102	/	2
83V73A13	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	[illegible]	
B			
C			

REL. DATE 3/29/76

ENG. [signature]

APPR.

TITLE: PANEL O13 OVHD

PANEL O13

SIMULATOR SMS

CIRCUIT BREAKER NAME	A/C CB NO.	CB MANUFACTURER AND PART NO. (IF POPPABLE)	MIL PPN	MIL SPN	FEEDER BUS	SEE SKETCH	COMMENTS
MN A							
FREON BYPASS VLV 2	17		MC1554-0026	1003396-01			
ATM PRESS CONTROL N_2 SUPPLY 1	18						
O_2N_2 CNTLR1	19						
O_2 KOVR	20						
N_2 REG INLET 1	21						
CABIN VENT ISOL	34 ~~22~~						
NOSE WHEEL STEERING	33 ~~23~~						
RADAR ALTM	24				?		

REV (A) – CB NO 22223

REF. DWG. NO.	REV.	PAGE
VLTD-730102	1	2
33V73A14	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	[illegible]	
B			
C			

REL. DATE 3/29/76

ENG. [illegible]

APPR.

TITLE: PANEL O14 OVHD

PANEL O14 SIMULATOR SMS PAGE 3 OF

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	PPN	SPN	FEEDER BUS	SEQ SKETCH	NTS
MN A							
MLS 1	25		MC454-0026	1009396-01			
ADTA 1	26						
STAR TRKR - Z	27						
ACCEL 1	28						
MMU 1	29						
DDU LEFT	30						
DDU AFT	31						
INST ~~LTG~~ L CTR	32				P		

REV A - CB 32

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A14	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/15/76		
B			
C			

REL. DATE 3/29/76

ENG. [signature]

APPR.

TITLE: PANEL 014 OVHD

PANEL 014 SIMULATOR SMS PAGE 2 OF

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	CB PN	CB SPN	FEEDER BUS	SEE SKETCH	COMMENTS
MNA ~~ANNUN LAMP TEST~~	~~33~~		MC454-0026	100396-01			See DTD 6 ?
MNA FWD ANNUN	33 ? (34)		↓	↓			Per DTD. 6
					?		

REV Ⓐ - ENTIRE PG.

REF. DWG. NO.	REV.	PAGE
VL 70-730102	1	2
33V73A14	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	MW Rinks	
B			
C			

REL. DATE 3/29/76

ENG. [signature]

APPR. [signature]

TITLE: PANEL 014 OVHD

PANEL 014 SIMULATOR SMS PAGE 5 OF

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	CONNECTOR PPN	CONNECTOR SPN	SEE SKETCH	NO DI AT THIS POSITION	COMMENTS
1	BRAKES MNA	1	ON	(X)-6101	1003370-02		OFF	"ON-ON"
2	RGA 1	1	ON				OFF	
3	RJDA 1A MANF L2R2 LOGIC	1	ON				OFF	
4	↓ MANF L2R2 DRIVER	1	ON				OFF	
5	RJDA 2B MANF L4R4 LOGIC	1	ON				OFF	
6	↓ MANF L4R4 DRIVER	1	ON				OFF	
7	RJDF 1A MANF F1 LOGIC	1	ON				OFF	
8	↓ MANF F1 DRIVER	1	ON				OFF	
9	L OMS ENG VLV	1	ON				OFF	
10	AGA 1	1	ON				OFF	
11	IMU 1	1	ON	↓	↓		2 OFF	See DTD.6

(X) ME452-0102- REV (A) - SW 3-9 NOMENCLATURE

REF. DWG. NO.	REV.	PAGE
VL 70-730102	1	2
33V73A14	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	[illegible]	
B			
C			

REL. DATE 3/29/76

ENG. [signature]

APPR.

TITLE: PANEL O14 OVHD

PANEL O14 SIMULATOR SMS PAGE 1 OF

CIRC. BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	PPN	SPN	FEEDER BUS	SEE SKETCH	COMMENTS
MAIN B							
ATM PRESS CONTROL N2 SUPPLY 2	17		MC454-0026	1003396-01			
O2N2 CNTLR 2	18						
O2 XOVR 2	19						
N2 REG INLET 2	20						
~~CABIN VENT ISOL~~	~~21~~						
CABIN RELIEF A	22						
RADAR ALTM 2	23						
MLS 2	24				7		

REV (A) - DELETED CB 21

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
38V73A15	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	[illegible]	
B			
C			

REL. DATE 3/29/76

ENG. [signature]

APPR. [signature]

TITLE: PANEL O18 OUHD

PANEL O15 SIMULATOR SMS PAGE 3 OF

CIRCUIT BREAKER LISTING

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	CORE PPN	CORE SPN	FEEDER BUS	SEE SKETCH	COMMENTS
MNB							
ADTA 2	25		MC484-0026	1003396-01			
STAR TRKR V	26						
ACCEL 2	27						
MNU 2	28						
DDU LEFT	29						
DDU RIGHT	30						
INST ~~LFB~~ RIGHT	31						

REV (A) - CB31

REF. DWG. NO.	REV.	PAGE
VL70-430100	1	2
33V78A15	12/2/75	

REV.	DATE	ENG.	APPR.
A	4/15/76	[illegible]	
B			
C			

REL. DATE 2/09/76

ENG. [illegible]

APPR.

TITLE: PANEL O15 OVHD

PANEL O15 SIMULATOR SPACE

E-2825-4-A

CIRCUIT BREAKER LISTING

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	~~CHANNEL~~ PPN	~~CORE~~ SPN ~~LOC.~~	FEEDER BUS	SEE SKETCH	COMMENTS
mNB FWD — ANNUN	32		MC454-0026	1003398-01			Per DTD. 6
mNB AFT — ANNUN	33						Per DTD. 6
					?		

REV (A) - ANNUN & CB NO'S

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V13A15	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	MPWBurden	
B			
C			

REL. DATE 9/29/76

ENG. [signature]

APPR.

TITLE: PANEL O15 OVHD

PANEL O15 SIMULATOR SMS

SWITCH SETTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	CHANNEL PPN	SPN ~~DRG. NO.~~	SEE SKETCH	No. OF THIS POSITION	COMMENTS
1	BRAKES MNB	1	ON	ⓧ-6101	1003370-02		OFF	"ON-DN"
2	RGA 2	1	ON				OFF	
3	RJDA MAN LI L5/R1 LOGIC	1	ON				OFF	
4	↓ MANF LI L5/R1 DRIVER	1	ON				OFF	
7	RJDF 2B MANF F2 LOGIC	1	ON				OFF	
8	↓ MANF F2 DRIVER	1	ON				OFF	
9	ASA 2	1	ON				OFF	
10	IMU 2	1	ON				OFF	
11	FC2 CNTLR	1	ON				OFF	
								See DTD. 6 S5 & S6 deleted

REV A - SW 3, 4, 7, 8 NOMENCLATURE

ⓧ ME452-0102-

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A15	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76		
B			
C			

REL. DATE 5/29/76

ENG. Jpa

APPR.

TITLE: PANEL 015 OVHD

PANEL 015 SIMULATOR SMS PAGE 1 OF

CIRCUIT BREAKER LISTING

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	PANEL PPN	SPN	FEEDER BUS	SEE SKETCH	COMMENTS
MNC							
UTILITY POWER AII AIS OEM	9		mc454-0026	1003396-01			
FLOOD RIGHT CTR	10						
FREON ~~RAD CNTRL 1~~	11						
~~RAD CNTRL 2~~	~~12~~						
By PASS VLV 1	13						
By PASS VLV 2	14						
H_2O ALT PRESS	15						
ATM PRESS CONTR O_2 EMEH	16				?		

REV Ⓐ - DELETED CB11212

REF. DWG. NO.	REV.	PAGE
VL7D-730102	1	2
33V73A16	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MAW Quinlan	
B			
C			

REL. DATE 3/29/76

ENG. Jda

APPR.

TITLE: PANEL 016 OVHD

PANEL C11 SIMULATOR SMS PAGE 2 OF

CIRCUIT BREAKER NAME	A/C CB NO.	C.B. AMPERAGE AND PART NO. (IF POPPABLE)	GE NET PN	CORE LOG SPN	FEEDER BUS	SEE SKETCH	COMMENTS
MNC FWD — ANNUN	25		MC454-0026	1003396-01			Per DTD. 6
MNC AFT — ANNUN	26						Per DTD. 6
					?		

REV Ⓐ - ADDED CB NO'S

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73016		

REV.	DATE	ENG.	APPR.
A	4/14/76		
B			
C			

REL. DATE 5/29/76

ENG.

APPR

TITLE
PANEL 016 OVHD

PANEL C16 SIMULATOR SMS PAGE 4 OF

SWITCH SETTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CONTROL~~ PPN	~~CODE IDENT~~ SPN	SEE SKETCH	IN LIT AT THIS POSITION	COMMENTS
1	BRAKES MNC	1	ON	ⓧ-6101	1003370-02		OFF	"ON-ON"
2	RGA 3	1	ON				OFF	
3	RJDA 2A MANF L3 R3/R5 LOGIC	1	ON				OFF	
4	↓ MANF L3/R3/R5 DRIVER	1	ON				OFF	Per DTD. 6
5	RJDF ~~1~~2A MANF F3 LOGIC	1	ON				OFF	
6	↓ F3 MANF DRIVER	1	ON				OFF	per DTD.6
12 ✱	RJDF ~~2~~2B MANF F4/F5 LOGIC	1	ON				OFF	
13 ✱	↓ MANF F4/F5 DRIVER	1	ON				OFF	
7	R OMS ENG VLV	1 3	ON ~~OFF~~	ⓧ-6103	1003370-03		~~OFF~~	"ON-~~OFF~~-ON"
10	IMU 3	1	ON	ⓧ-6101	1003370-02		OFF	"ON-ON"
11	FC 3 CNTLR	1	ON	↓	↓		OFF	↓

REV Ⓐ - SW526, 8T012, 9T013

ⓧ ME452-0102- SW7 - TYPE

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A16	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	MW Quinby	
B			
C			

REL. DATE 3/29/76

ENG. Jm

APPR.

TITLE PANEL 016 OUHD

PANEL 016 SIMULATOR [illegible] PAGE 1 OF

SWITCH SETTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMEN-CLATURE	PPN	SPN	SEE SKETCH	NO DE AT THIS POSITION	COMMENTS
~~12~~	~~R-D-F-SYS~~ LOGIC	1	~~ON~~	Ⓧ-6101	1003370-02		~~OFF~~	Per D T D. 6
~~13~~	↓ ~~MAIN FUEL~~	1	~~ON~~	↓	↓		~~OFF~~	"ON-ON"
	ASA 3	1	ON				OFF	↓
	↓ 4	1	ON				OFF	

REV Ⓐ - ENTIRE PG

Ⓧ ME 452-0102-

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A16	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	MWelch	
B			
C			

REL. DATE 3/29/76

ENG. Joe

APPR.

TITLE: PANEL 016 OVHD

PANEL 016 SIMULATOR SMS PAGE 2 OF

SWITCH STINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMEN-CLATURE	CHANNEL PPN	CORE LOC. SPN	SEE SKETCH	NO DEAD TIMES POSITION	COMMENTS
13	SIGNAL CONDITIONER OL 1/2 ~~A~~	1	ON	(X) 6101	1003870-08		OFF	"ON-ON"
~~14~~	~~OL 1/2 B~~	~~+~~	~~ON~~				~~OFF~~	
14 ~~15~~	OR 1/2 ~~A~~	1	ON				OFF	
~~16~~	~~OR 1/2 B~~	~~+~~	~~ON~~				~~OFF~~	
17	SIG CONDR OA 1/2/3	1	ON				OFF	
19	MDM OA 1/2/3	1	ON				OFF	

(X) ME 452-0102-

REV (A) - DELETED SW14 216
CHANGED SW15 TO SW14

REF. DWG. NO.	REV.	PAGE
VL70-780102	1	2
33V73A17	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/14/76	mwdirk	
B			
C			

REL. DATE 8/29/76
ENG. Joe
APPR.

TITLE
PANEL 017 OUHD

PANEL 017 SIMULATOR SMS PAGE 2 OF

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME		~~DISPOSITION~~ BPN	COMMENTS SPN	
JACK	J1	TV POWER			
JACK	J2	UTILITY POWER-DC			
JACK	J3	COAS POWER			

REV (A) - TYPE OF JACK

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	2
33V73A19	12/12/75	

REV.	DATE	ENG.	APPR.
A	4/15/76		
B			
C			

REL. DATE 3/29/76

ENG.

APPR.

TITLE: PANEL 019 OVHD

PANEL 019

SMS

PAGE ___ OF ___

F-2625-1

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	~~CORE LOC~~ SPD PART NO	SEE SKETCH	NO DI at This Location	COMMENTS DESCRIPTION
S1	Control Bus PWR MNA	2	*Reset	Ⓐ-6102	1003370-05			*ON-ON
			-	-	-			
S2	MNB	2	*Reset					
			-	-	-			
S3	MNC	2	*Reset					
			-	-	-			
S4	ESS Bus Source MNB/C	1	ON	Ⓐ-6101	1003370-03			ON-ON
			OFF	-	-			
S5	MNC/A	1	ON					
			OFF	-	-			
S6	MNA/B	1	ON					
			OFF	-	-			
S7	FC1	1	ON					
			OFF	-	-			
S8	FC2	1	ON					
			OFF	-	-			
S9	FC3	1	ON					
			OFF	-	-			
S10	FC/Main Bus A	9	* ON	Ⓐ-			#[N]	*ON-#OFF-*ON
			* OFF					
S11	B	9	* ON				#[N]	
			* OFF					

*= mom
#= latched pos
[N] = Null

Ⓐ ME452-0102 REV Ⓐ - ADDED SW NO'S

REF. DWG. NO.	REV.	PAGE
VL70-730102	1	1
32V73A1A1	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MW Linder	
B			
C			

REL. DATE 3/26/76
ENG. MW Linder
APPR.

TITLE PANEL R1A1

3 of 7

PANEL R1A1

F-2625-1-A

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	CHANNEL SPEC NO.	CORE LOC. SPD Part No	SEE SKETCH	No OF at This Position	COMMENTS
S12	FC/Main Bus C	9	* ON	⊛			#[N]	*ON - #OFF - *ON
			* OFF					
S13	MN Bus Tie A	4	* ON	⊛6105	1003370-04		[N]	*ON - OFF - *ON
			* OFF					
S14	B	4	* ON				[N]	
			* OFF					
S15	C	4	* ON				[N]	
			* OFF					
S16	INV PWR 1	4	* ON				[N]	
			* OFF					
S18	2	4	* ON				[N]	
			* OFF					
S20	3	4	* ON				[N]	
			* OFF					
S17	INV/AC Bus 1	4	* ON				[N]	
			* OFF					
S19	2	4	* ON				[N]	
			* OFF					
S21	3	4	* ON				[N]	
			* OFF					

* = mom
# = Locked pos
[N] = Null

⊛ = ME 452-0102

REV Ⓐ - ADDED SW NO'S

REF. DWG. NO.	REV.	PAGE
VL70-73 0102	1	1
32 V73 R1 A1	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MW Quinby	
B			
C			

REL. DATE 3/26/76

ENG. MW Quinby

APPR.

TITLE
PANEL
R1 A1

F-2625-1-A

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	~~CORE~~ Loc. SPD PART NO	SEE SKETCH	NO DI AT THIS POSITION	COMMENTS DESCRIPTION
S22	AC BUS SNSR 1	3	AUTO TRIP	⊛ 6103	1003370-01		OFF	ON - ~~OFF~~ - ON
			MONITOR					
S23	2	3	AUTO TRIP				OFF	
			MONITOR					
S24	3	3	AUTO TRIP				OFF	
			MONITOR					
S25	Payload Cabin	3	MNB				OFF	
			MNC					
S26	PRI MNB	4 X	ON	⊛ -6105	1003370-04		[N]	ON - ~~OFF~~ - ON
			OFF	—	—			
S27	PRI FC3	4 X	ON				[N]	
			OFF	—	—			
S28	PRI MNC	4 X	ON				[N]	
			OFF	—	—			
S29	AUX	1 X	ON	⊛ -6103	1003370-01		[N]	ON - ~~OFF~~ - ON
			OFF	—	—		OFF	
S30	AFT MNB	1	ON	⊛ 6101	1003370-02			ON - ON
			OFF	—	—			
S31	AFT MNC	1	ON					
			OFF	—	—			

[N] : NULL ⊛ = ME452-0102

REV Ⓐ - ADDED SW NO'S
CHANGED SW 26-29 SW TYPE

REF. DWG. NO.	REV.	PAGE
VL 70-73010 2	1	1
32V73 A1A1	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MW Quinlan	
B			
C			

REL. DATE 3/26/76
ENG. MW Quinlan
APPR.

TITLE
PANEL
RIAL
3 OF 1

MISCELLANEO. COMPONENTS

TYPE OF EQUIPMENT	NAME	DISPOSITION SPEC NO	COMMENTS SPD PART NO	COMMENTS DESCRIPTION
EVENT INDICATORS	POWER DISTRIBUTION FC MAIN BUS A DS 1	MC432-0222 —		2 STATE ON - OFF
	B DS 3			
	C DS 5			
	MN BUS TIE A DS 2			
	B DS 4			
	C DS 6			
	INV PWR A DS 7			
	B DS 9			
	C DS11			
	INV/AC BUS A DS8			
	B DS10			

REV (A) - ADDED DS NO'S

REF. DWG. NO.	REV.	PAGE
VL70-73010 2	1	1
32V73 A1A1		12-12-75

REV.	DATE	ENG.	APPR.
A	4/15/76	MWGunter	
B			
C			

REL. DATE 3/26/76
ENG. MWGunter
APPR.

TITLE: PANEL R1A1

MISCELLANEOUS COMPONENTS

TYPE OF EQUIPMENT	NAME	DISPOSITION	COMMENTS	
	POWER DISTRIBUTION INV TAC 865	SPEC NO	SPD PART NO	DESCRIPTION
EVENT INDICATOR	C DS12	MC432-0222 -		2 STATE ON — OFF
	PRI MNB DS13	-		
	PRI FC3 DS14	-		
	PRI MNC DS15	-		

REV Ⓐ - ENTIRE PG

REF. DWG. NO.	REV.	PAGE
VL70-730102	7	1
32V73 A1 AH	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MWGuider	
B			
C			

REL. DATE 3/26/76

ENG. MWGuider

APPR.

TITLE: PANEL R1A1

PANEL R1A1 SIMULATOR 5215 PAGE 9 OF 7

F-2625-1-A

SWITCH LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMENCLATURE	~~CHANNEL~~ SPEC NO	~~CORE Loc.~~ SPD PART NO	SEE SKETCH	NO DI AT THIS POSITION	~~COMMENTS~~ DESCRIPTION
S44	APU/HYD BOILER N_2 SUPPLY	1	ON	Ⓜ-6101	1003370-02			ON - ON
			OFF	—	—			
S45	2	1	ON					
			OFF	—	—			
S46	3	1	ON					
			OFF	—	—			
S47	ET umbilical Door MODE	3	GPC	Ⓜ-6103	1003370-01		OFF	ON - OFF - ON
			Man					
S48	Center Line Hatch	1	GND	Ⓜ-6101	1003370-02			ON - ON
			STOW	—	—			
S49	LEFT DOOR	3	OPEN	Ⓜ-6103	1003370-01		OFF	ON - OFF - O
			CLOSE					
S50	LATCH	3	Release				OFF	
			Latch					
S51	RIGHT	3	OPEN				OFF	
			CLOSE					
S52		3	Release				OFF	
			Latch					
S53	MPS LH2 ULLAGE	10	# AUTO	Ⓜ-6101	~~1003370-01~~			# ON - ON
			OPEN	—	—			

Ⓜ=ME 452-0103

REV Ⓐ - S53

#= LOCKED POSITION

REF. DWG. NO.	REV.	PAGE
VL70-730102	2	2
32V73A2 PANEL R2	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	mw Bunker	
B			

REL. DATE 3/26/76

ENG. mw Bunker

TITLE: PANEL R2

F-2625-1-A

SWIT. LISTINGS

	SWITCH NAME	TYPE SWITCH	SWITCH NOMEN-CLATURE	~~CHANNEL~~ SPEC NO	~~CORE Loc.~~ SPD PART NO	SEE SKETCH	NO DI AT THIS POSITION	~~COMMENTS~~ DESCRIPTION
	MAIN PROPULSION SYSTEM							
S11	LO_2 PREVALVE 1	12	OPEN	⊛-6354			# GPC	ON - # OFF - ON
			CLOSE					
S12	2	12	OPEN				# GPC	
			CLOSE					
S13	3	12	OPEN				# GPC	
			CLOSE					
S14	LH_2 PREVALVE 1	12	OPEN	⊛-6258	1003604-03		# GPC	ON - # OFF - ON
		~~*~~	*CLOSE					
S15	2	12	OPEN				# GPC	
		~~*~~	*CLOSE					
S16	3	12	OPEN				# GPC	
		~~*~~	*CLOSE					
S17	FEED LINE RLF ISOL LO_2	12	OPEN	⊛-6103	1003370-01		GPC	
		~~*~~	CLOSE					
S18	LH_2	12	OPEN				GPC	
		~~*~~	CLOSE					
	HYDRAULICS							
S19	LG Heater ACTUATORS	3	AUTO ~~A~~ A				OFF	ON - OFF - ON
			AUTO ~~B~~ B					
~~S20~~	~~LINE~~	~~3~~	~~AUTO A~~				~~OFF~~	
			~~AUTO B~~					
S21	LG RETRACT CIRC VLV	12	OPEN	⊛-6354			# GPC	ON - # OFF - ON
			CLOSE					

~~*~~ = Mom.
= Locked position
⊛ = ME 452-0102

REV Ⓐ - S14 - S18 - SW TYPE
DELETED S20

REF. DWG. NO.	REV.	PAGE
VL70-730102	2	2
32V73 A4	12-12-75	

REV.	DATE	ENG.	APPR.
A	4/15/76	MW Burke	
B			
C			

REL. DATE 3/26/76
ENG. MW Burke
APPR.

TITLE
PANEL R4
2 OF 4

TYPE OF EQUIPMENT	NAME	~~DISPOSITION~~ SPEC NO	~~COMMENTS~~ SPE PART NO	DESCRIPTION
KEYBOARD	PANEL C2A1 KEYBOARD	MC615-0007		4X9 SWITCHES
↓	PANEL C2A2 KEYBOARD	↓		↓
S12 DIGITAL SW	PANEL C2A3 TIMER SET	MC452-0134-0005		45ECS. (5-9-59)

REV Ⓐ - KEYBOARD NOMENCIATURE

REF. DWG. NO.	REV.	PAGE
VL70-730102	2	2
35V73A2A1	12-12-7[illegible]	
35V73A2A2		
35V73A2A3		

REV.	DATE	ENG.	APPR.
A	4/15/76	MWSinko	
B			
C			

REL. DATE 3/26/76

ENG. MWSinko

APPR.

TITLE: PANEL C2A1, C2A2, C2A3

PANELS C2[illegible] C2A2 C2A3 SIMULATOR

CIRCUIT BREAKER NAME	R/C CB NO.	C.B. COVERAGE AND PART NO. (IF POPPABLE)	ROC PART NO.	SPEC NO.	FEEDER BUS	SEE SKETCH	COMMENTS
HUMIDITY SEPARATOR HUM SEP A AC1 ΦB	CB 75 ~~73~~		MC 454-0026	1003396-01		CB TYP POPPABLE	
AC1 ΦC	76 ~~74~~						
B AC2 ΦA	77 ~~75~~						
AC2 ΦB	78 ~~76~~						
AC2 ΦC	79 ~~77~~						
SIC COND HUM SEP	80 ~~78~~						
IMU FAN	81 ~~79~~						
KU BAND A AC1 3Φ ~~AC1 ΦA~~	82 ~~80~~						

REV (A) - CB NO'S - CB 82 TO 3Φ

REF. DWG. NO.	REV.	PAGE
VL70-730102 31V73A4	1	2

REV.	DATE	ENG.	APPR.
A	4/14/76	[illegible]	
B			
C			

REL. DATE 3/30/76
ENG. TF Gilbert
APPR.

TITLE: CB's PNL 4

PANEL 1-4 SIMULATOR SIMS PAGE 10 OF 17

ATTACHMENT 3

PDR Ground Rules

SMS WP #20 (Crew Station, C&D)

1. Design, build, and assemble all required hardware which has a 50% + confidence factor of being correct.

2. Stagger schedule as much as possible to take advantage of obtaining data in lieu of having to use assumptions but such that Singer does not slip end dates. As required, make options based on assumptions which will enable Singer to perform needed work on a workable schedule to meet their end item delivery within cost and schedule.

3. Procure all needed vendor parts A/R for both FBCS and MBCS and assemble them per ground rule #1 above.

4. Any exceptions to the above three ground rules are to be flagged, with rationale, to R. D. McCafferty for his understanding and possible redirection.

5. Document through minutes, as a minimum, general actions taken!

	DATA / DRAWING TO BE USED				
AREA	V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION : # Ø20-	DECISION DATE	REMARKS

ATTACHMENT 7

THE SINGER COMPANY
SIMULATION PRODUCTS DIVISION
BINGHAMTON, NEW YORK

CREW STATION

CONTROLS AND DISPLAYS

REVISIONS	PREPARED BY (TYPE OR PRINT)	DATE	PREPARED BY (SIGNATURE)	DATE	CHECKED BY	DATE	APPROVED	DATE
ORIGINAL								

CREW STATION CONTROLS AND DISPLAYS

Each crew station control and display will be duplicated in appearance, location, feel, fit, action and reaction to the high degree required for crew training.

All cockpit lighting controls on simulated panels will be operative. Lighting will be variable where required, through operation of the dimming controls. Panels will be lit as in the spacecraft, and integral lighting for instruments will be provided. Power logic will be incorporated in these circuits.

Most of the crew station controls and displays will interface with the simulation computer complex through analog and digital Signal Conversion Equipment (SCE).

Discrete Functions

Discrete digital functions include such devices as switches, flag and lamp type indicators (event indicators and annunciators), circuit breakers, decimal readouts, keyboards, and other special devices such as the DEU or parallel to serial converters for special instruments.

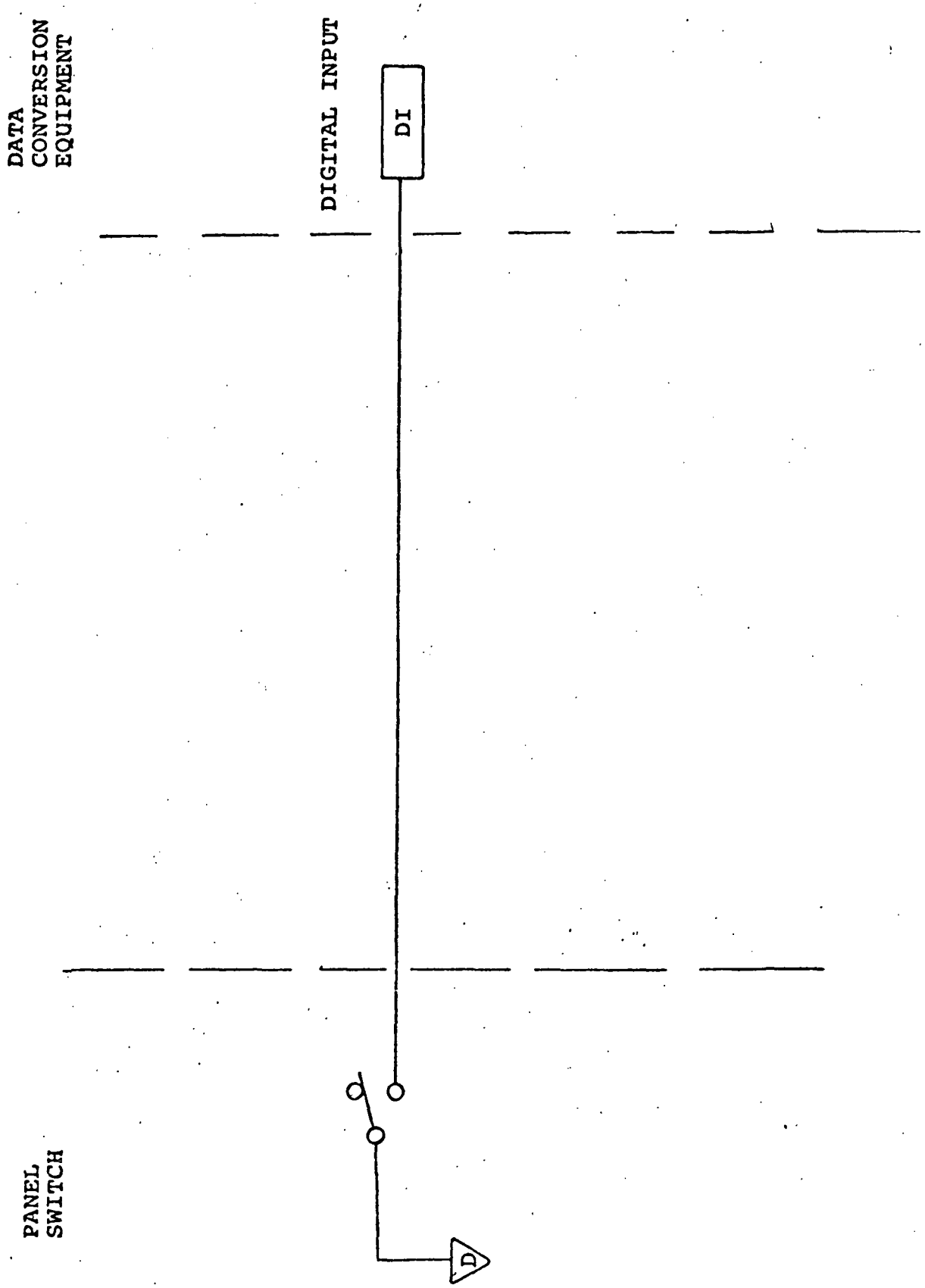
Representative examples of discrete components and how they are wired to the SCE are illustrated.

The basic design philosophy used on the OAS shall also apply to the SMS. All switches of 3 positions or less shall have N-1 DI's assigned (n=number of positions). All switches 4 positions or more shall have a DI for each position. The position that will not be assigned a DI shall be (a) the "OFF" position, or (b) the switch position shown on the layout drawing if it is a three position switch, or if there is no "OFF" position.

The lamp test function shall be provided as in the space-craft, and, as in OAS, all the LO-controlled lamps shall be diode isolated. This will prevent false indications in the SCE self-test when lamp test is actuated.

Digital I/O are DI's, DO's, and LO's.

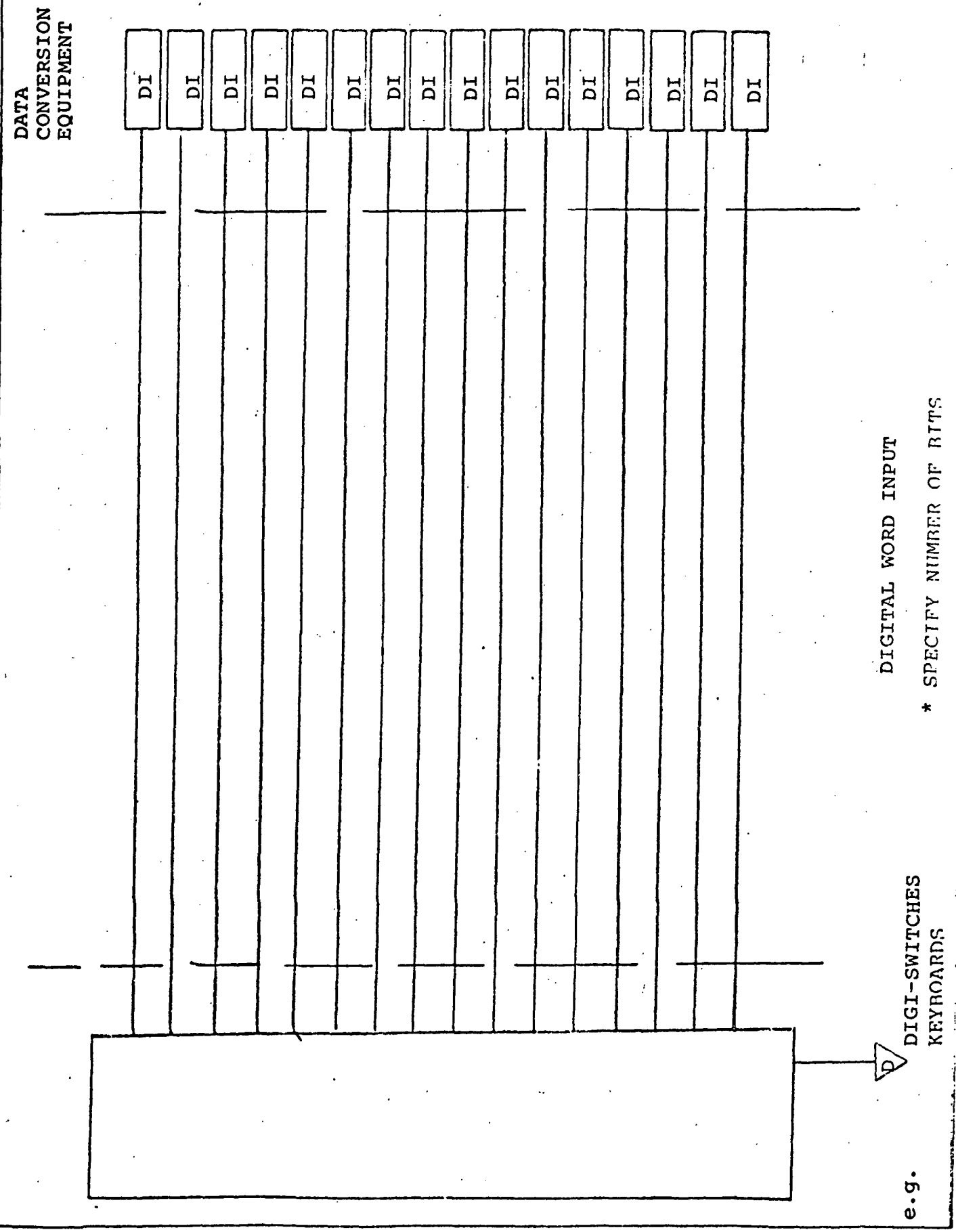
DATE	THE SINGER COMPANY SIMULATION PRODUCTS DIVISION BINGHAMTON, NEW YORK	PAGE NO.
REV.		REP. NO.



TWO POSITION ALTERNATE ACTION TOGGLE SWITCH

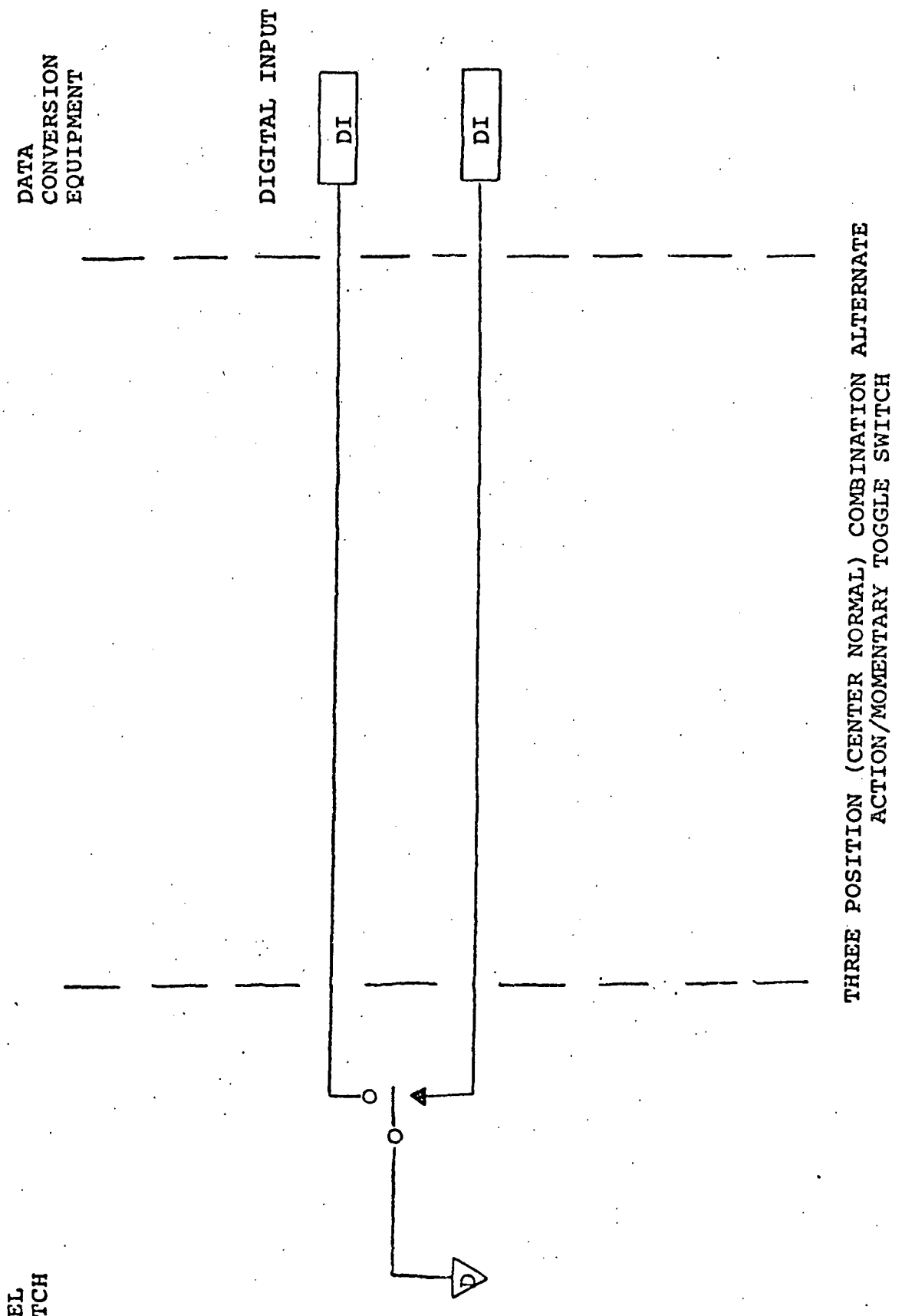
F-398.6.A

DATE	THE SINGER COMPANY SIMULATION PRODUCTS DIVISION	PAGE NO.
REV.	BINGHAMTON, NEW YORK	REP. NO.



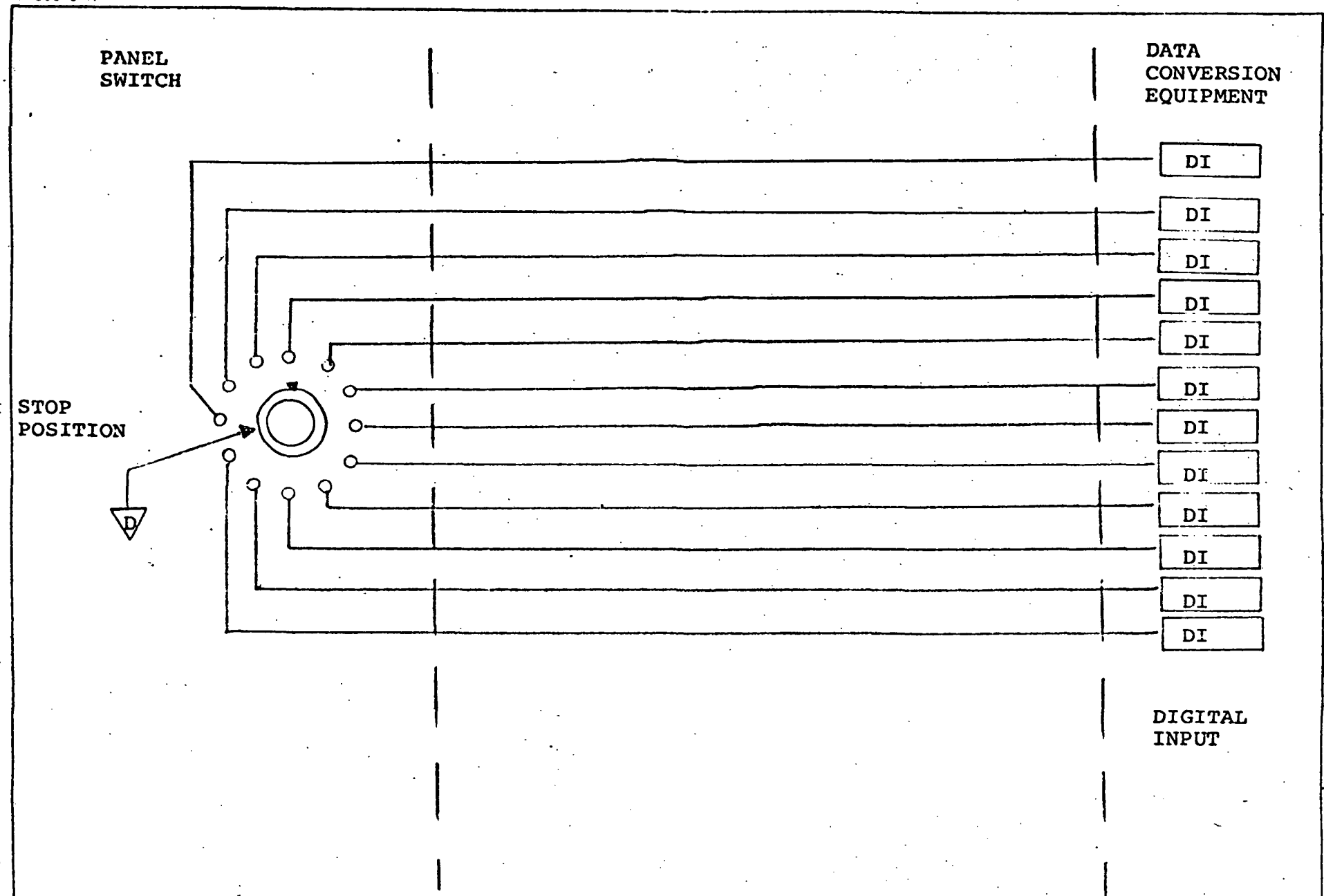
F-398-8-A

DATE	THE SINGER COMPANY SIMULATION PRODUCTS DIVISION	PAGE NO.
REV.	BINGHAMTON, NEW YORK	REP. NO.



F.398-8-A

F-398-8-A



ROTARY SWITCH
* SPECIFY NUMBER OF POSITIONS (n) AND NUMBER OF DI BITS

DATE
REV.

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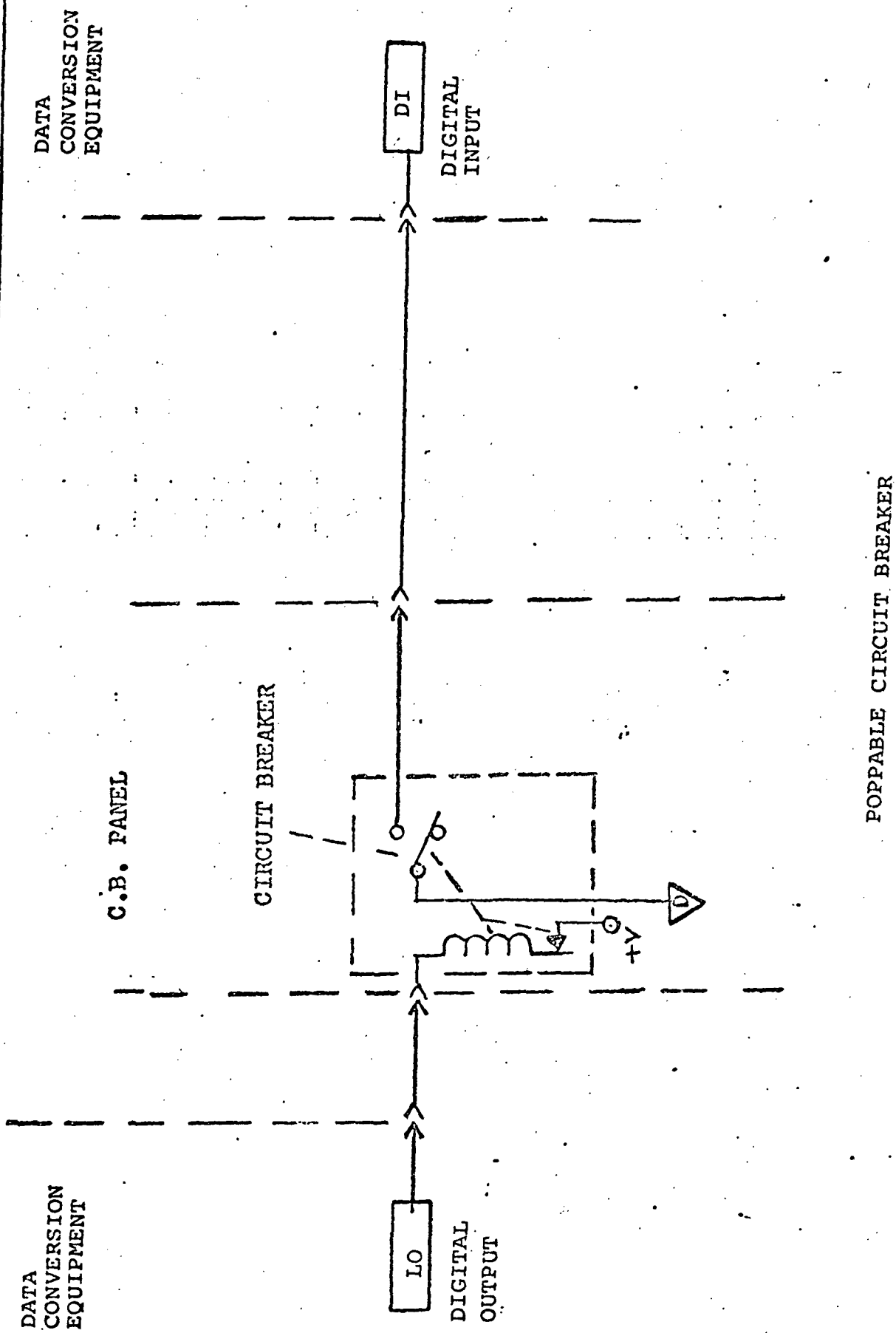
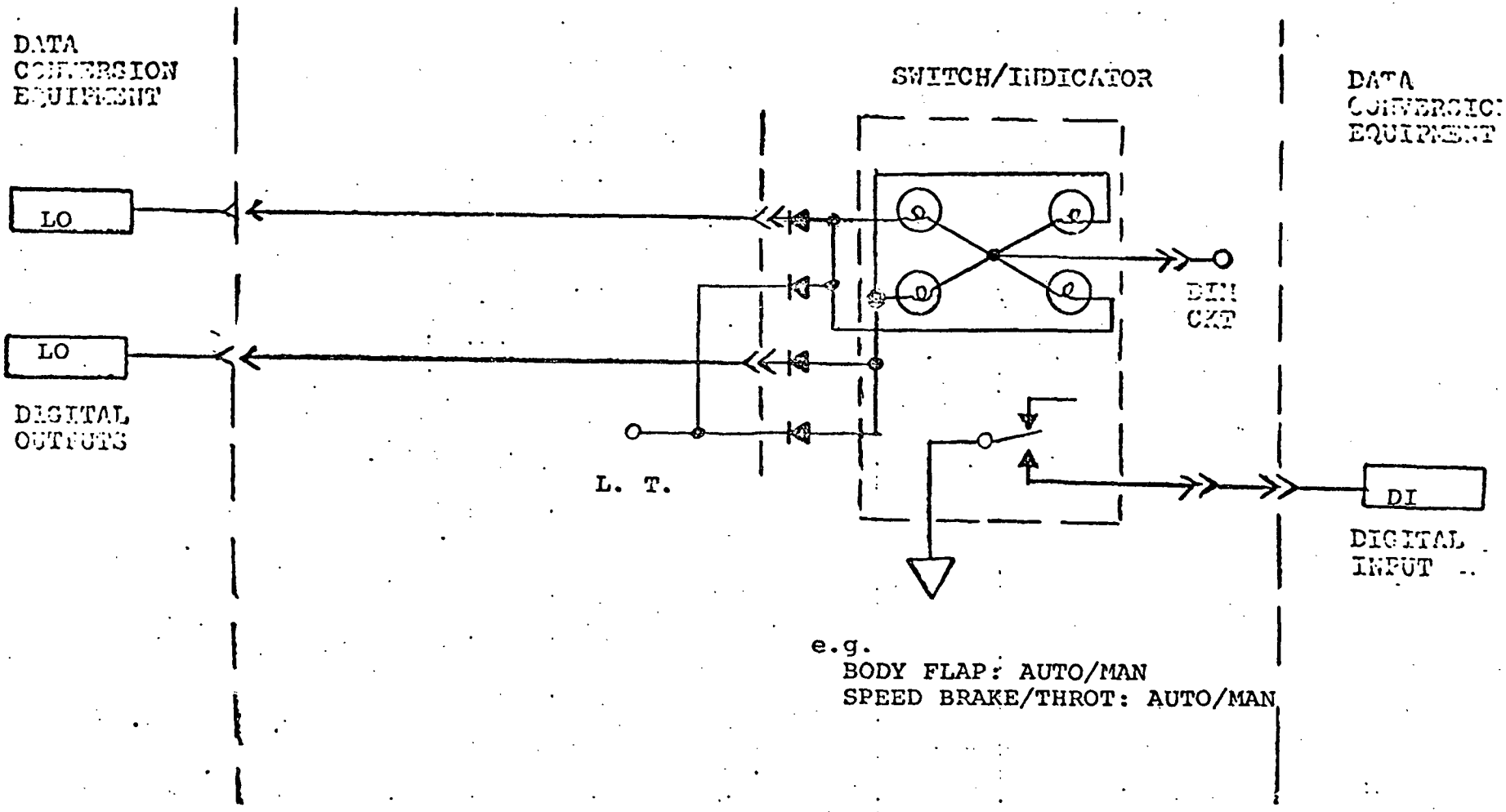
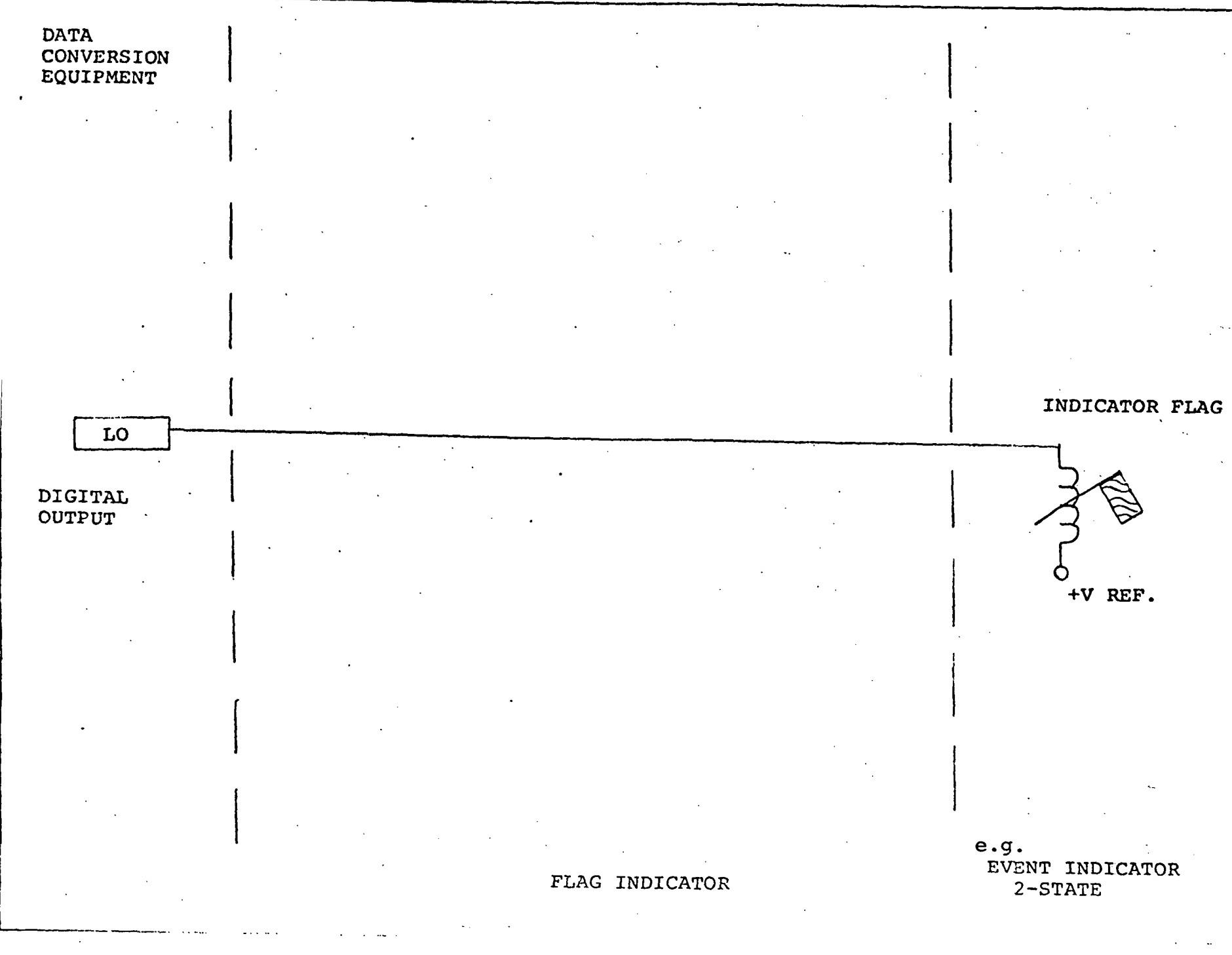
PAGE NO.
REP. NO.


DATA CONVERSION EQUIPMENT
DI
DIGITAL INPUT
C.B. PANEL
CIRCUIT BREAKER
POPPABLE CIRCUIT BREAKER
+V
DATA CONVERSION EQUIPMENT
LO
DIGITAL OUTPUT



ILLUMINATED MOMENTARY SWITCH WITH COMPUTER ACTIVATED LIGHTS



FLAG INDICATOR

e.g.
EVENT INDICATOR
2-STATE

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REP. NO.	PAGE NO.

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DATE 6-22-73
REV.

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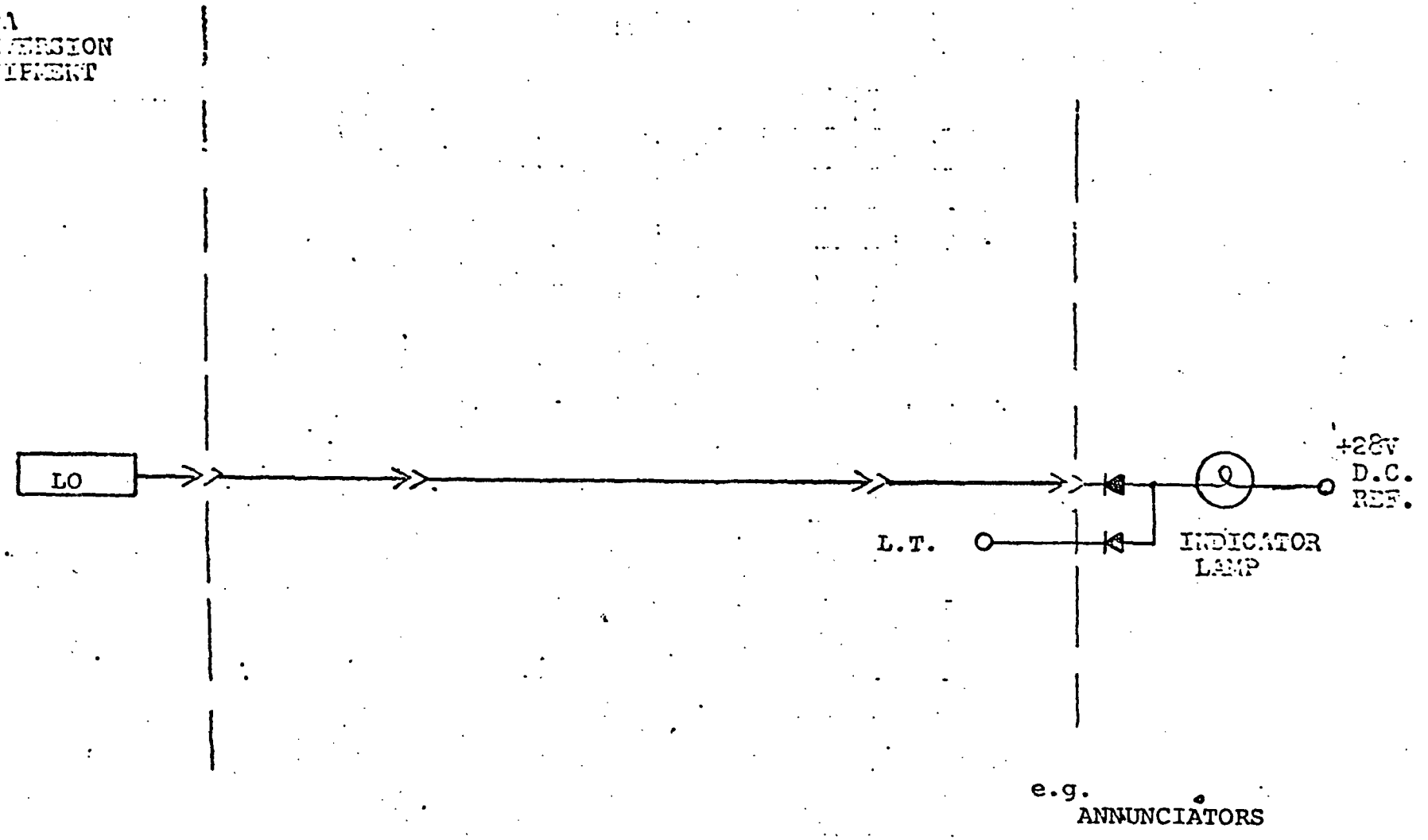
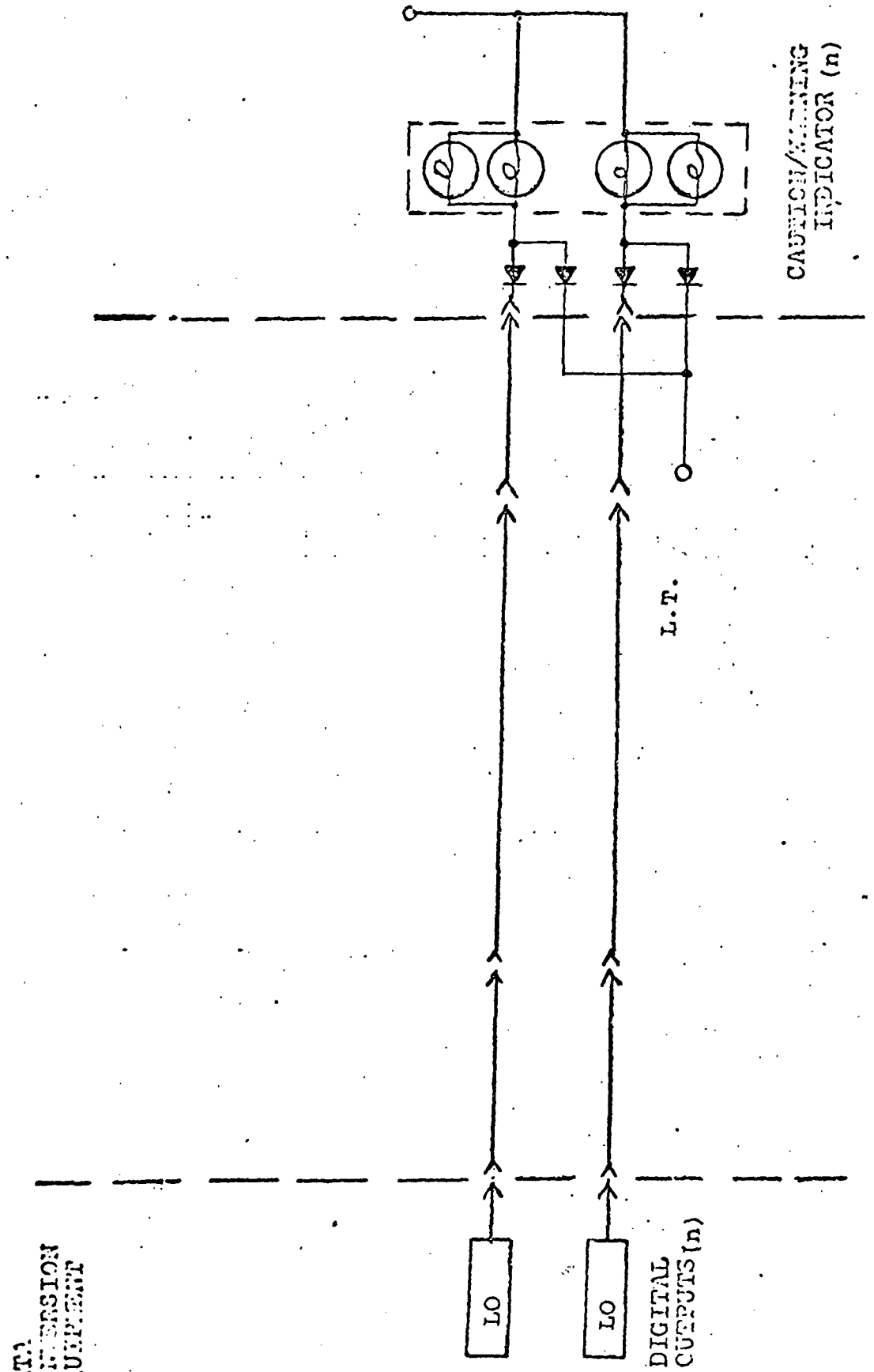
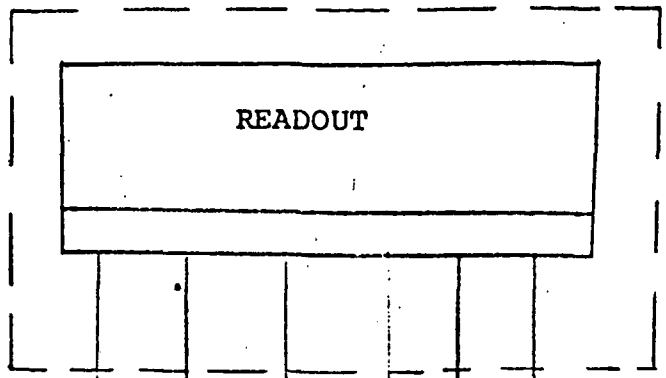
SIMULATION PRODUCTS DIVISION
BINGHAMTON, NEW YORK

PAGE NO. 8-11
REP. NO.



INDICATOR LAMP


DATA CONVERSION EQUIPMENT
LO
LO
DIGITAL OUTPUTS (n)
L.T.
CAUTION/WARNING INDICATOR (n)
n=ARRAY
e.g.
CAUTION & WARNING (40)
COMPUTER STATUS (25)
FIRE WARNING (10)
CAUTION/WARNING INDICATOR



D.C. RETURN

+VDC

L.T.

LAMP TEST WILL BE DONE EITHER S/W or H/W.

e.g. EVENT TIMERS
MISSION TIMERS

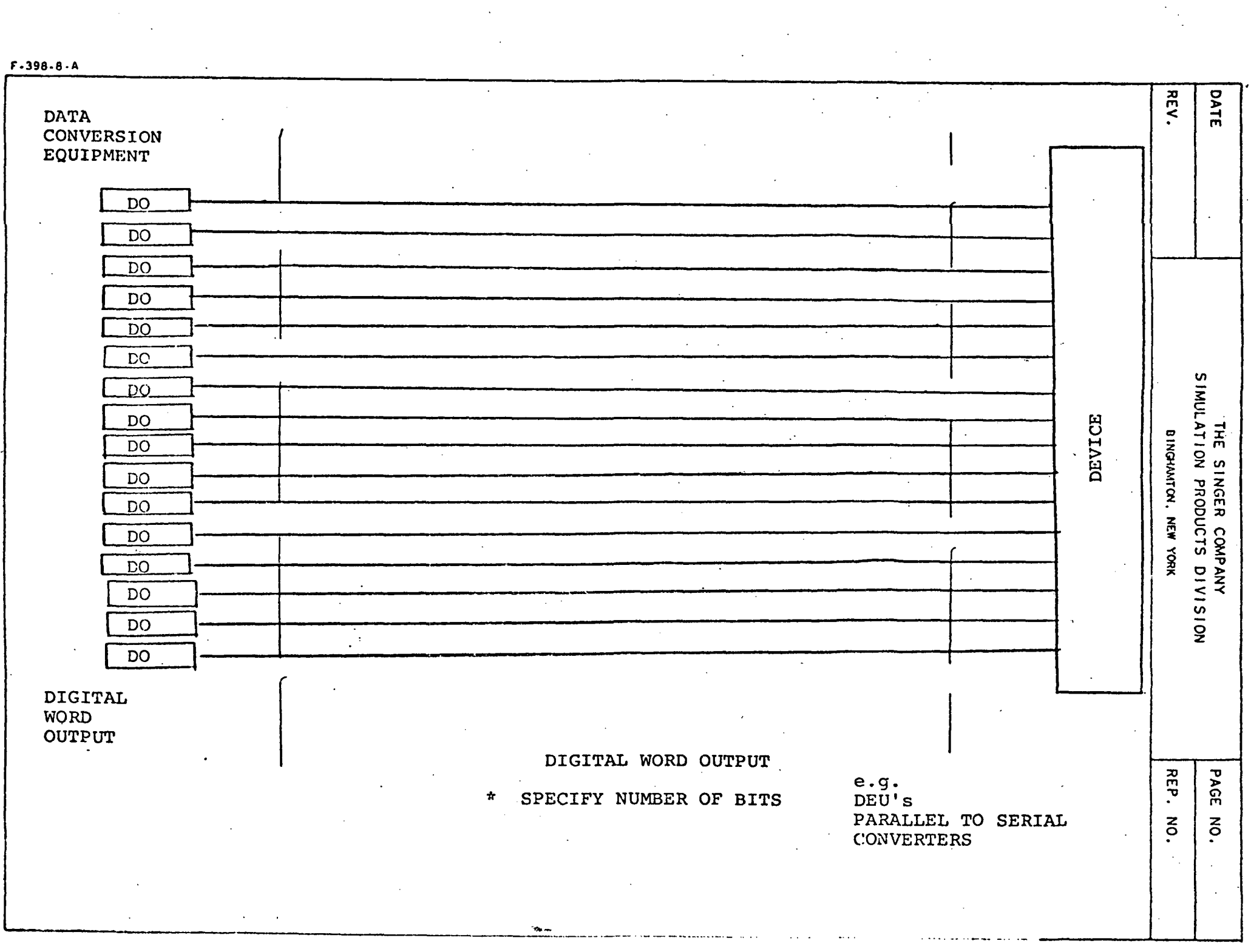
DIGITAL READOUT (1 DIGIT)

DATA CONVERSION EQUIPMENT

DIGITAL OUTPUTS

LO or DO DEPENDING ON TYPE OF READOUT

F-398-8-A


DATA
CONVERSION
EQUIPMENT
DO
DO
DO
DO
DO
DO
DO
DO
DO
DO
DO
DO
DO
DO
DO
DIGITAL
WORD
OUTPUT
DEVICE
DIGITAL WORD OUTPUT
* SPECIFY NUMBER OF BITS
e.g.
DEU's
PARALLEL TO SERIAL
CONVERTERS
REV.
DATE
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REP. NO.
PAGE NO.

Analog Functions

Analog functions include potentiometers and other transducers for control or measurement, and D'Arsonval meter movement and DC and AC servomechanisms for display and positioning.

The RHC, THC, and SBTC will input their position to the computer through an analog-to-digital device in the SCE called an AI.

Meter movement instruments will be driven directly from computer programs through digital-to-analog converters (AO's). Examples shown are the round and vertical meters.

Other cockpit indicators are driven by one or a combination of the following drive systems:

(a) DC Servo Type 1

(b) DC Servo Type 2

(c) DC Servo Dual Speed

(d) DC Synchro

(e) AC Synchro (ESRD)

A DC Servo movement is one which contains an operational amplifier with sufficient high gain that sums a drive signal and a follow-up signal. This amplifier then positions a motor as a function of the error signal produced. The pointer is geared to the motor and to the precision follow-up potentiometer.

When the requirement is for a multiple-turn device, there is need for greater accuracy plus the ability to keep track of the number of turns made. This is accomplished by having both coarse and fine signals. The coarse signal is a single AO channel. The fine signals consist of two phase related waveforms. In the instruments for OAS and SMS these are true sine and cosine.

A DC Synchro movement is one in which the indicator pointer is positioned by the DC produced field between two coils. One field is produced from a signal containing the sine of the desired pointer angle and the second field is produced from a signal containing the cosine of the desired pointer angle. The pointer itself is mounted on a rotor.

An AC Synchro movement is simply a classical synchro receiver, connected to an indicator pointer. Its position is determined by the phase relation and voltage on each of three coils. The rotor is positioned in the field of these coils. This type, so as to be driven by the DC outputs from the SCE, require ESRD's which convert two phase-related DC signals into the three required voltages.

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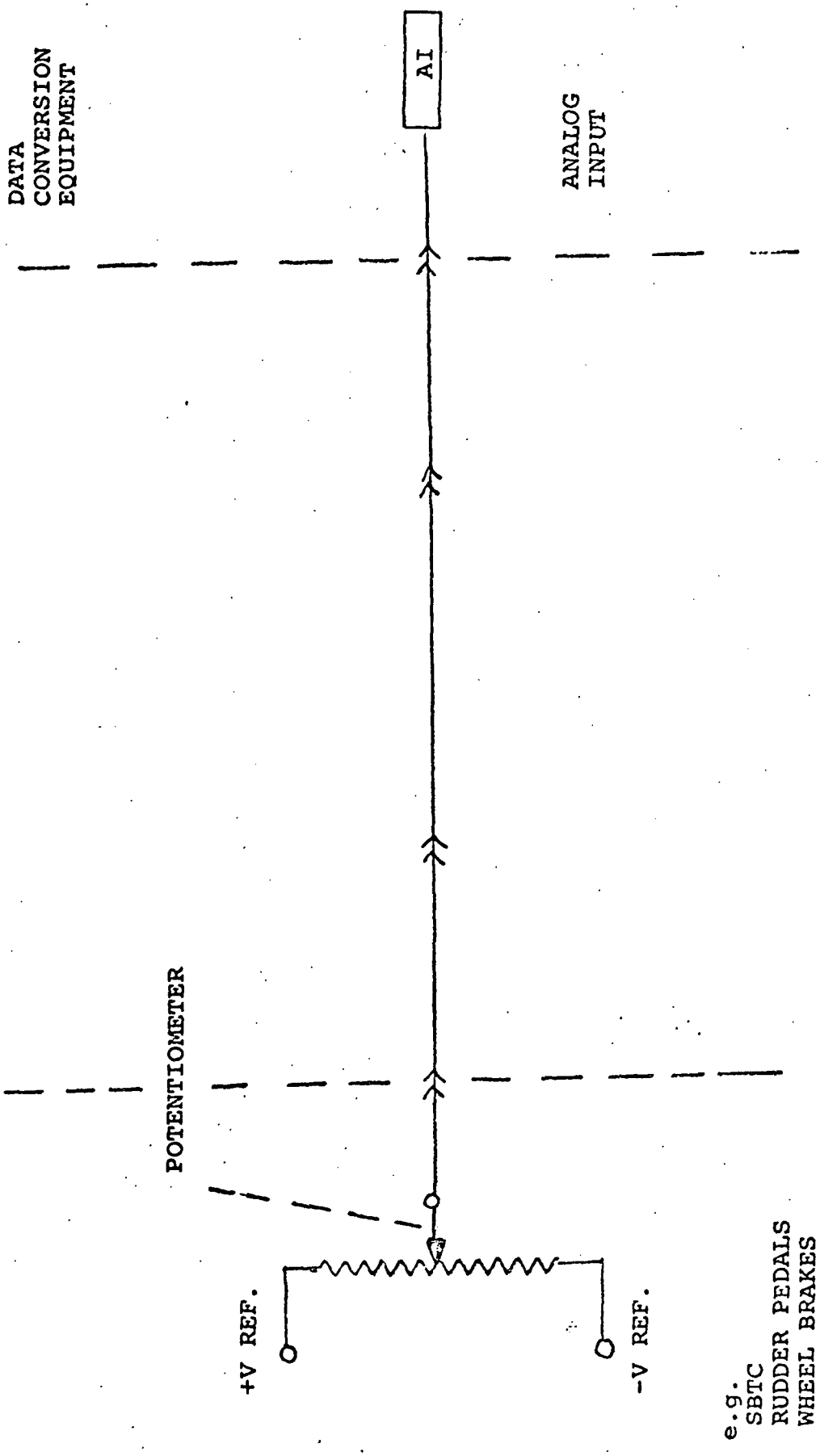

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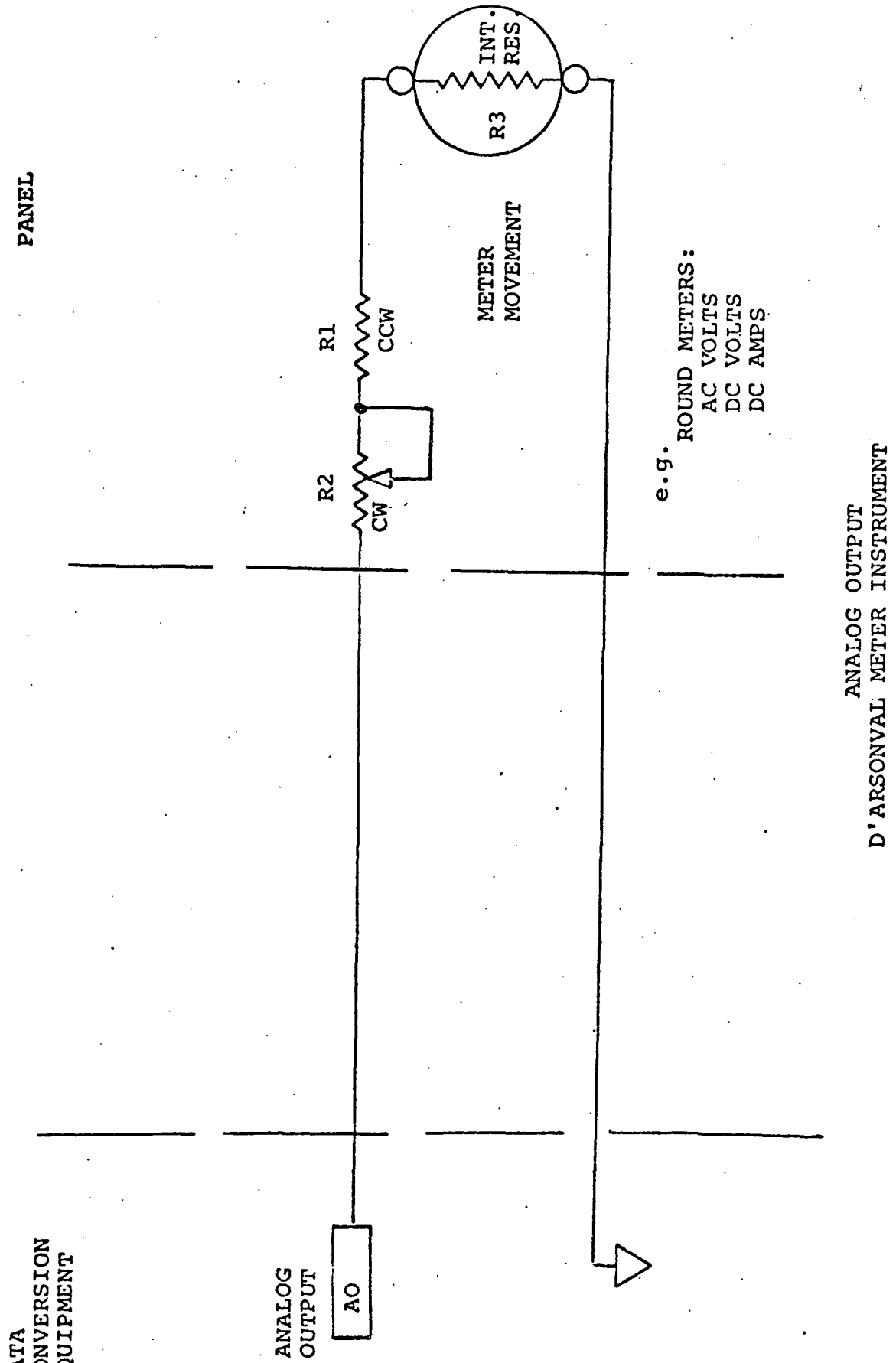

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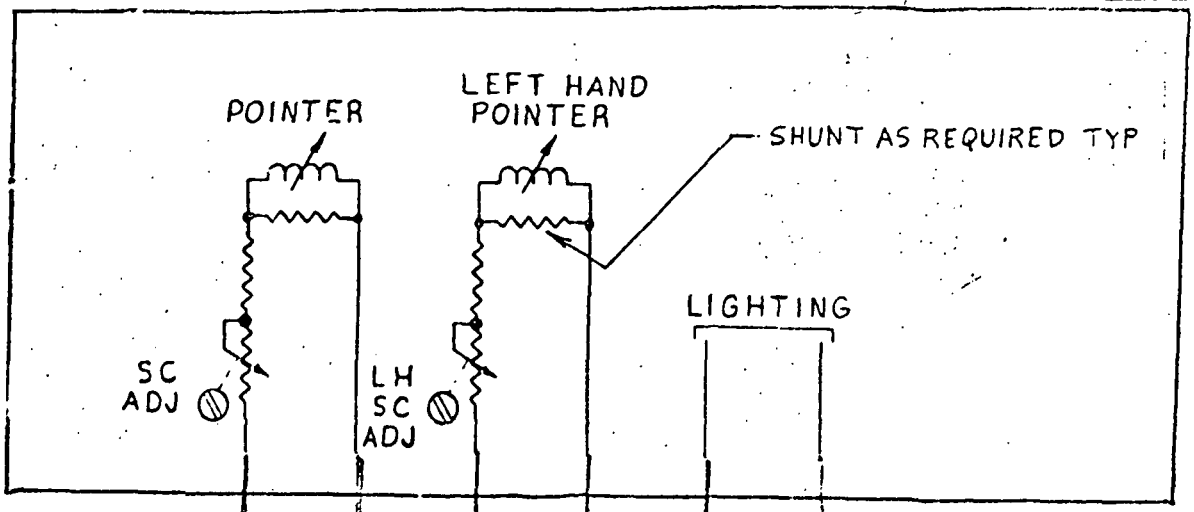

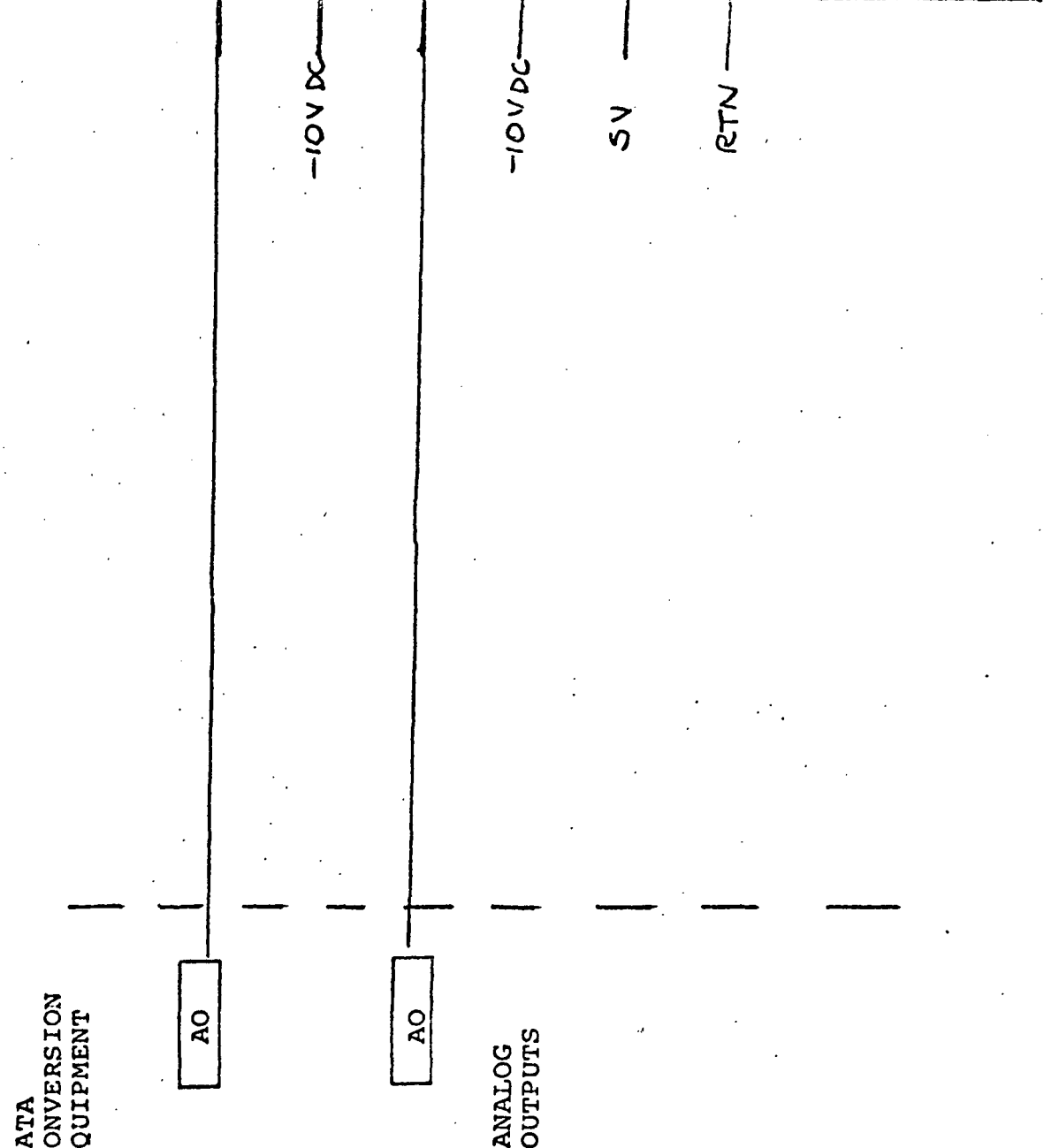

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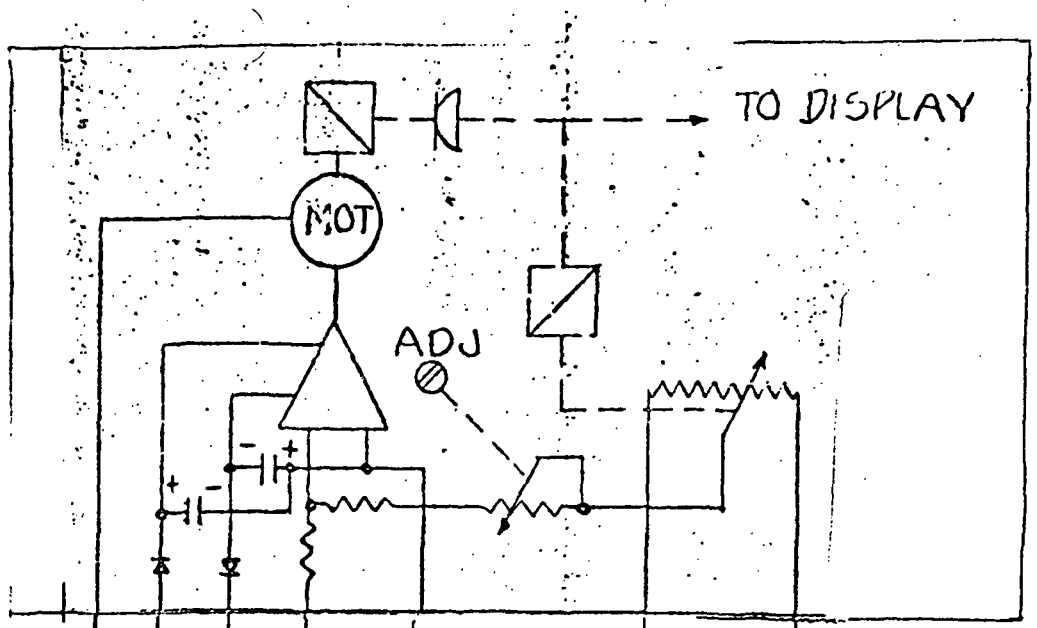

INDICATOR

e.g. TAPE METERS
SPI

D. C. SERVO INSTRUMENT OR DEVICE
ANALOG OUTPUT
TYPE 1

PWR RTN
+15 V DC
-15 V DC
SIG RTN
+10V DC
-10V DC

DATA CONVERSION EQUIPMENT

AO

ANALOG OUTPUT

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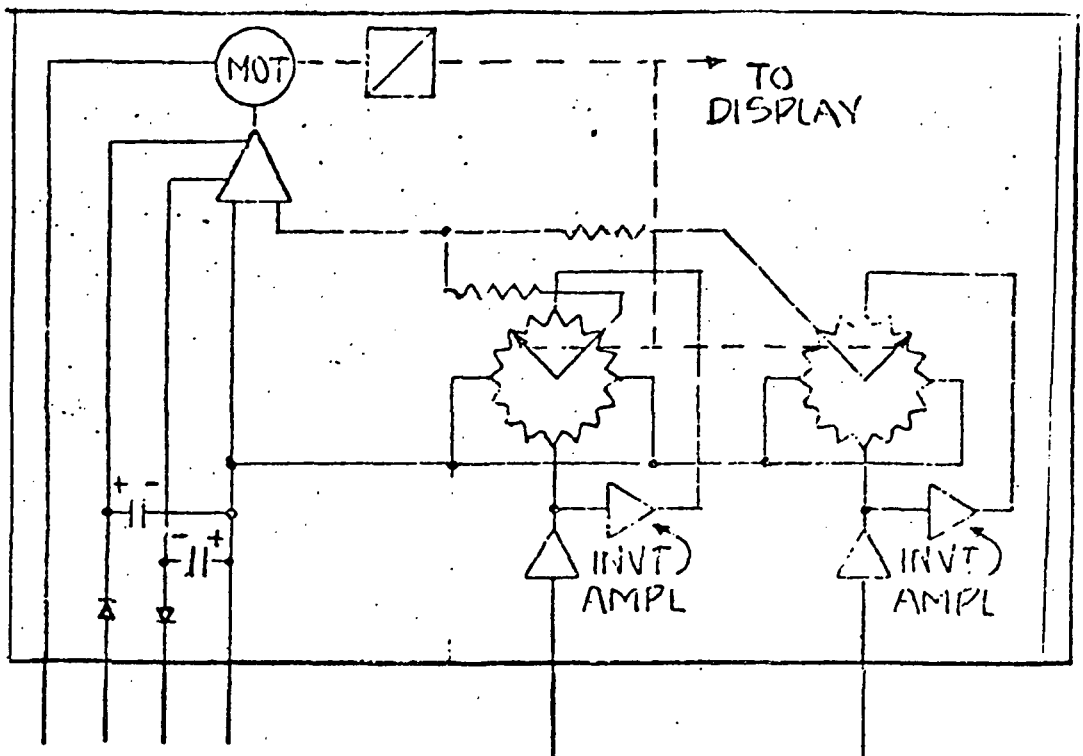


INDICATOR

e.g. HSI

PWR RTN
+15V DC
-15V DC
SIG RTN

ANALOG OUTPUTS
D.C. SERVO INDICATOR
TYPE 2

X
Y

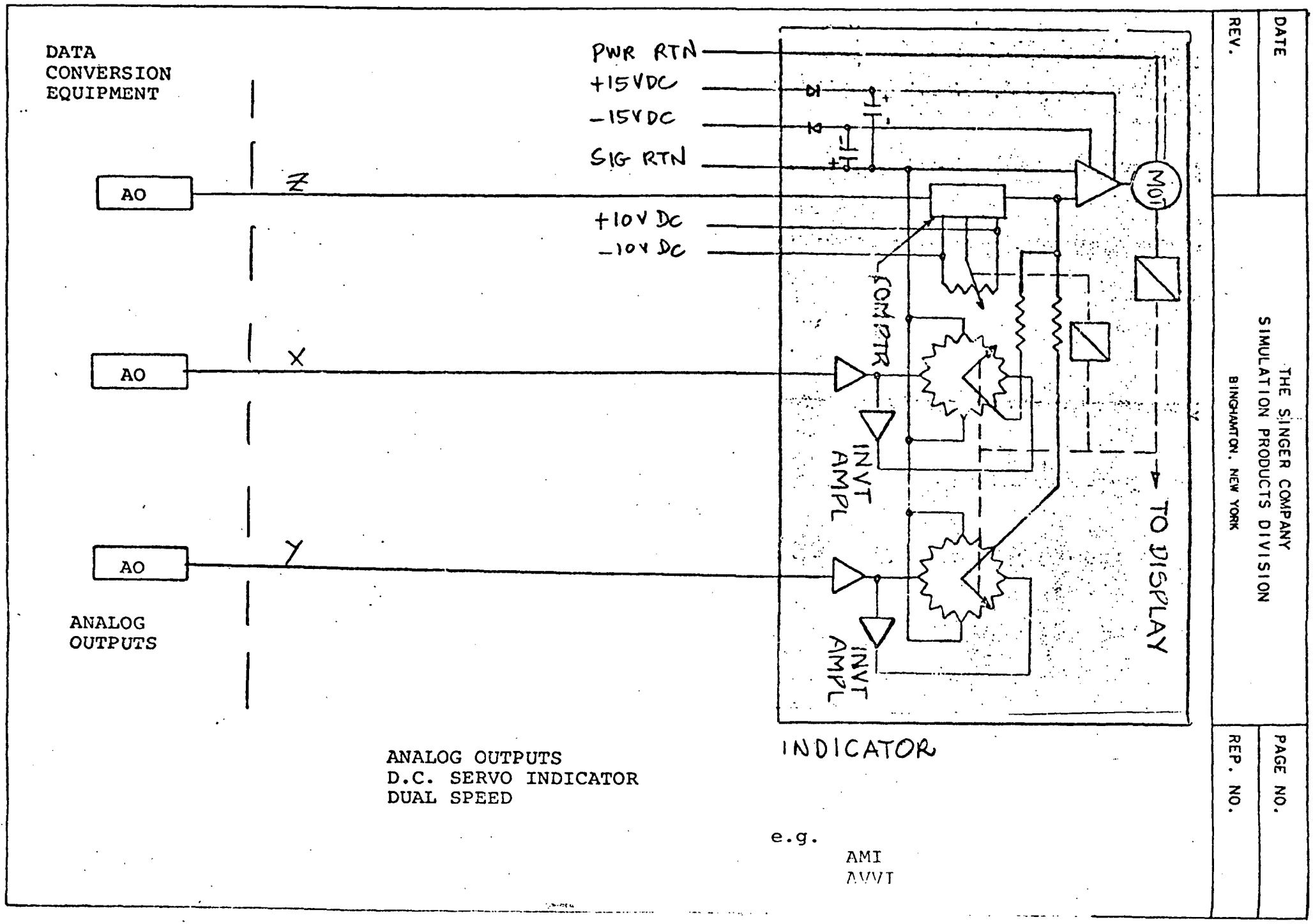
AO
AO

DATA CONVERSION EQUIPMENT

ANALOG OUTPUTS

F-398-8-A

F-398-8-A



ANALOG OUTPUTS
D.C. SERVO INDICATOR
DUAL SPEED

e.g.
AMI
AVVI

DATE
REV.

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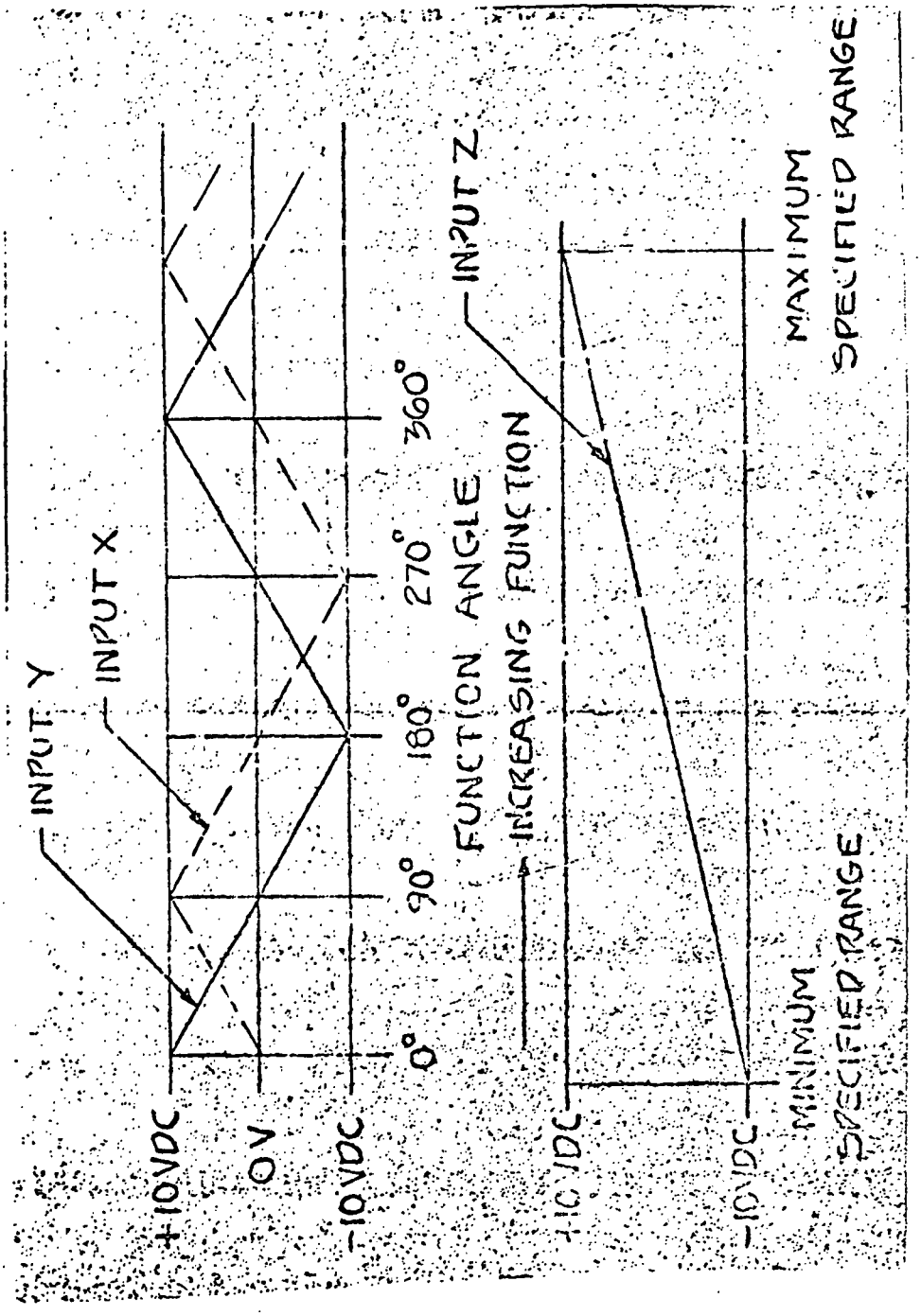
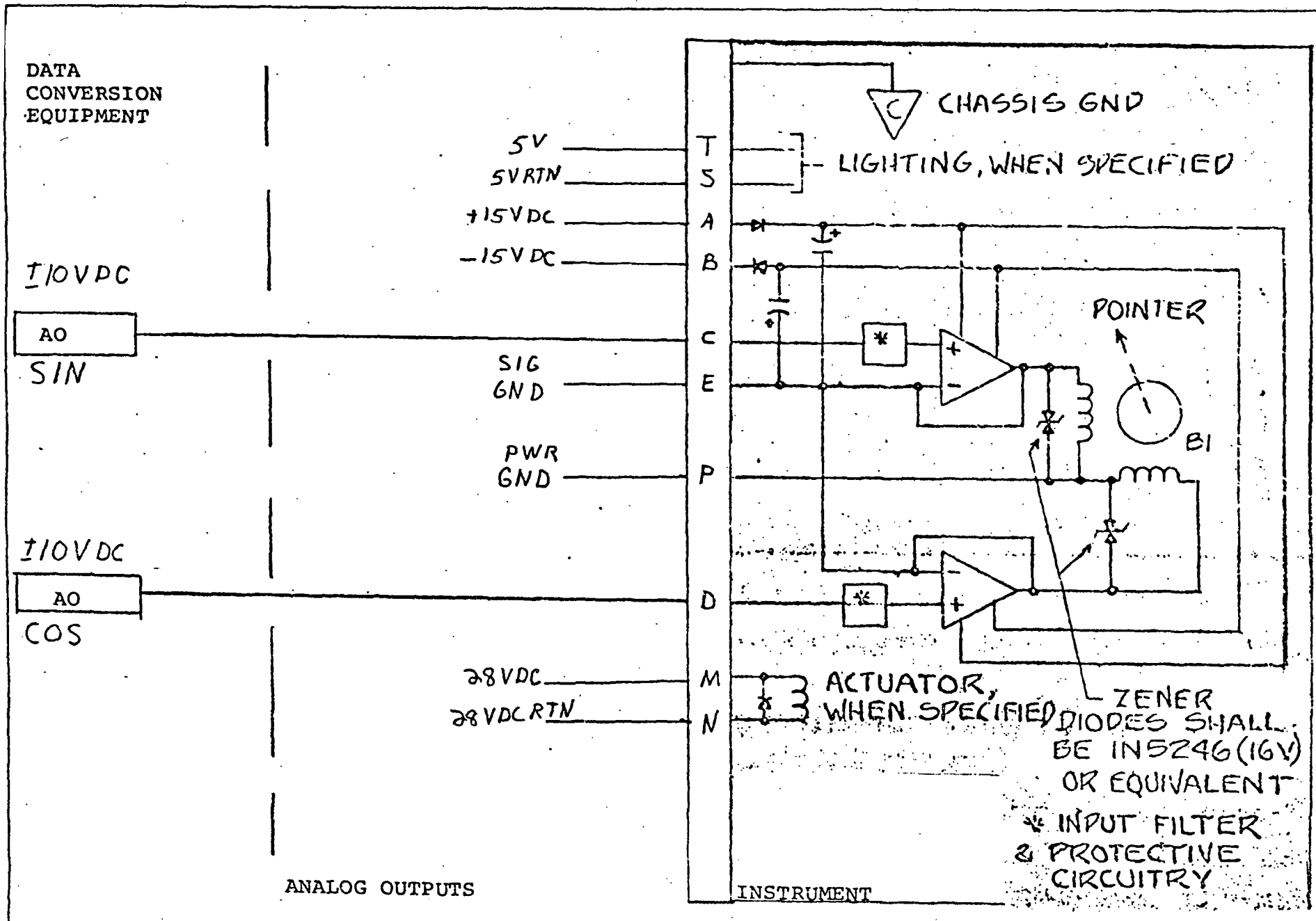
PAGE NO.
REP. NO.



COARSE (Z) AND -01 FINE (X,Y) SIGNAL INPUTS
-02 HAS TRUE SINE & COSINE FOR THE FINE SIGNAL INPUTS



ANALOG OUTPUTS

D. C. SYNCHRO-REPEATER INDICATOR

e.g. ACCELEROMETER

REV. | DATE

THE SINGER COMPANY
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BINGHAMTON, NEW YORK

REP. NO. | PAGE NO.

DATE	THE SINGER COMPANY SIMULATION PRODUCTS DIVISION BINGHAMTON, NEW YORK	PAGE NO.
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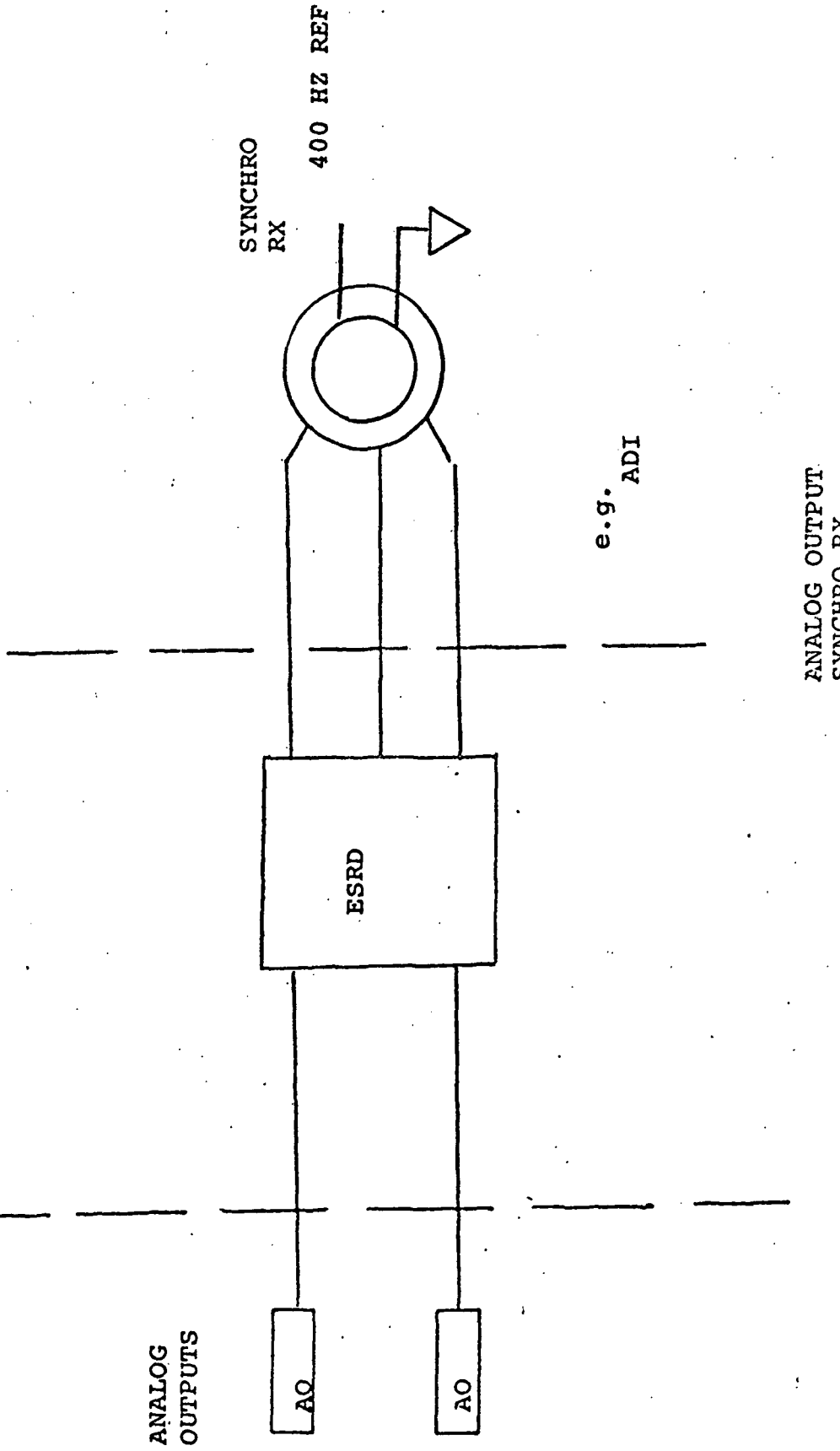

F-398-8-A

ATTACHMENT .5

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
B. M. GIFFORD	NASA	4/20/76	N20-001P

TITLE
SECOND FBCS ENTRANCE LADDER

2. DESCRIPTION OF PROBLEM:

PRESENT DESIGN INCLUDES TWO HATCHES WITH ONE LADDER SAFETY HAZARD FOR EMERGENCY EGRESS.

3. RECOMMENDATION:

ADD SECOND LADDER TO FIXED BASE HATCHES.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

SECONDARY ENTRANCE/EXIT WILL BE THRU HATCH TWELVE FEET ABOVE FLOOR.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
For C. Mire	

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Clarke	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

COST IMPACT UNDER $2,000 - NO SCHEDULE IMPACT.

4/21/76

8. SCP ACTION:

5T

APPROVAL

SCP CHAIRMAN	DATE
	4/22/76

JSC Form 1570 (Mar 76) NASA-JSC

ATTACHMENT 6.

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
CLIFF MIRE	FE26	4/20/76	N20-002P

TITLE
SMS CREW STATION CEI SPEC CHANGES

2. DESCRIPTION OF PROBLEM:

THE SMS CEI SPEC DRD NO. SE-227T DOES NOT DIFFERIENTIATE THE EFFECTIVITIES OF MBCS, FBCS, FBCS MOD KIT.

3. RECOMMENDATION:
CHANGE PAGE 4 PARAGRAPH 3.1.1.1.1 TO INDICATE EFFECTIVITIES COVERED BY THE CEI. CHANGE PAGE 11 TO SHOW FBCS MOD KIT GFE REQUIREMENTS. CHANGE APPENDIX TO SHOW C&D PANEL EFFECTIVITIES PLUS ADD AN ENTRY TO BE UPDATED LATER FOR THE FBCS MOD KIT. ALSO FOR ITEM #17 CHANGE F5 TO F6. CHANGE PAGE 11, PARAGRAPH 3.2.2.1 ITEM 5 FROM (1) TO (2).

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

CEI WOULD BE INCORRECT.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
BM Gilliland For C. Mire	BM Gilliland

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
Charles Glenday	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO COST OR SCHEDULE IMPACT.

LaBlanc 4/21/76

8. SCP ACTION:

ST

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

JSC Form 1570 (Mar 76) NASA-JSC

SMS PROGRAM DIRECTIVE

FB & MB

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK	SPD	4/15/76	S20-[illegible]01P

TITLE
SECTION CHIEF

2. DESCRIPTION OF PROBLEM:

THE TYPE OF EVENT INDICATORS (FLAGS) FOR THE SMS HAVE CHANGED FROM ALL 2 STATE TO MOSTLY 3 STATE TYPES RESULTING IN AN INCREASED SCE REQUIREMENTS. ALSO, THE MBCS CANNOT USE ALL OF THE EXISTING OAS EVENT INDICATORS AS PROPOSED.

3. RECOMMENDATION:

INCORPORATE THE 3 POSITION EVENT INDICATOR.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

THE SMS AND 102 VEHICLE WILL NOT BE THE SAME CONFIGURATION.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
Cliff Brue 4/20/76	B M Gilbert

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Oldaker	4/20/76

7. CONTRACTOR'S IMPACT STATEMENT:

COST FOR EVENT INDICATORS FOR MBCS AND ADDITIONAL SCE WILL BE INCREASED. THE FBCS WILL ALSO HAVE SIMILAR COST INCREASE.

T Yonke 1615 4/16 D. Aaron 4-19-76 L C Brown 4/21

8. SCP ACTION:

5R

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

JSC Form 1570 (Mar 76) NASA-JSC

ATTACHMENT 8

SMS PROGRAM DIRECTIVE FB & MB

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK	SPD	4/15/76	S20- 002P

TITLE
SECTION CHIEF

2. DESCRIPTION OF PROBLEM:
REVISION C to VL70-730102 HAVE CHANGED THE FORWARD PANELS FROM DATA SUPPLIED FOR PDR DOCUMENTATION. ~~CAUSING ADDITIONAL EFFECT~~.

3. RECOMMENDATION:
INCORPORATE THE CHANGES INTO THE FORWARD PANEL AT PDR.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:
THE SMS WILL NOT BE IN CONFIGURATION WITH VEHICLE 102.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
Cliff Mock 4/20	B M Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Clark	4/20/76

7. CONTRACTOR'S IMPACT STATEMENT:
COST INCREASE AND INTERMEDIATE SCHEDULE CHANGES FOR BOTH THE FBCS AND MBCS.

T Gerek 4/16 R. Dias 4/19 L.R. Brown 4/21/76

8. SCP ACTION:

5R

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

JSC Form 1570 (Mar 76) NASA-JSC

ATTACHMENT 4

SMS PROGRAM DIRECTIVE FB & MB

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK	SPD	4/15/76	S20-003P

TITLE
SECTION CHIEF

2. DESCRIPTION OF PROBLEM:

LAYOUT DATA RECEIVED FROM ROCKWELL HAVE INDICATED THAT THE EYEBROW, L&R CONSOLE AND CIRCUIT BREAKER STRUCTURE ARE CHANGING TO ACCEPT THE 102 PANELS. ~~SPD PROPOSED COST FOR THE SMS ASSUMED THAT THESE STRUCTURE WOULD BE SAME AS OAS~~.

3. RECOMMENDATION:

INCORPORATE THE CHANGES SO PANELS AND STRUCTURES WILL BE THE SAME CONFIGURATION AS THE 102 VEHICLE.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

SMS PANELS WILL NOT MATE WITH EXISTING OAS DESIGNED STRUCTURE.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
4/20/76	

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
C. Darby	4/20/76

7. CONTRACTOR'S IMPACT STATEMENT:

COST INCREASE AND INTERMEDIATE SCHEDULE CHANGES FOR BOTH THE FBCS AND MBCS.

T. Gerek KSH 4/16 S. Hein 4-19-76 4/21/76

8. SCP ACTION:

5R

APPROVAL

SCP CHAIRMAN	DATE
McCulloch	4/22/76

ATTACHMENT 10

SMS PROGRAM DIRECTIVE FB ONLY

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK	SPD	4/15/76	S20-004P

TITLE
SECTION CHIEF

2. DESCRIPTION OF PROBLEM:

REVISION C TO V070-730102 HAVE MADE MANY CHANGES TO THE AFT CREW STATION PANELS FROM THE DATA SUPPLIED PRIOR TO PDR DOCUMENTATION

3. RECOMMENDATION:

INCORPORATE THESE CHANGES AND HOLD SEPARATE PDR FOR THE AFT CREW STATION PANELS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

THE FBCS WILL NOT BE OF THE CONFIGURATION PRESENTLY DESIGNED FOR THE 102 VEHICLE.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
[signature] 4/20/76	B M Gu[illegible]

6. DISPOSITION

☑ Approved ☐ Disapproved ☐ Withdrawn
☑ Tech. Direction ☐ Contractor's Impact Statement Req.

COMMENTS: ~~Hold for aft CS PDR~~

APPROVAL

TECHNICAL MANAGER	DATE
L. Kosky	4/20/76

7. CONTRACTOR'S IMPACT STATEMENT:

~~COST INCREASE AND~~ INTERMEDIATE SCHEDULE CHANGES. (M)

T. Gerek K&H 4/16 J. Hesir 4/19/76 W Brown 4/22/76

8. SCP ACTION:

5T

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

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ATTACHMENT 11

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK			S20-005P

TITLE
HSI CONFIGURATION

2. DESCRIPTION OF PROBLEM:

THE HSI DESIGN FOR THE SMS WILL BE THE SAME AS THAT FOR THE OAS AND WILL NOT INCLUDE THE EFFECTS OF RID S7-129 WHICH HAS NOT BEEN DISPOSITIONED FOR OAS.

3. RECOMMENDATION:

IF NASA APPROVES OAS RID S7-129 FOR SIMCOM IMPLEMENTATION, THEN THIS RID SHOULD ALSO BE APPLIED TO SMS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

LOSS OF CONFIGURATION CONTROL BETWEEN OAS AND SMS.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
B M Gaffney for C. Mire	B M Gaffney

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Bailey	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

IF OAS APPROVES RID, NO SMS COST IMPACT. IF OAS DISAPPROVES RID, SMS WOULD EXPERIENCE COST IMPACT FOR HSI REVISION FOR BOTH OAS & SMS. POTENTIAL SCHEDULE PROBLEM IS UPDATING OAS TO MBCS. (3 MMONTH INDICATOR TURN AROUND).

L C Brown 4/21/76

8. SCP ACTION:

CAT 7 (5/26/76)

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

ATTACHMENT 12

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
T. GEREK			S20-006P

TITLE
INSTRUMENT CONFIGURATION-SHATTER SHIELDS

2. DESCRIPTION OF PROBLEM:
INSTRUMENT DESIGN FOR THE SMS WILL BE THE SAME AS THE CURRENT OAS DESIGN AND WILL NOT INCLUDE SHATTER SHIELD. ADDITION OF SHATTER SHIELDS TO THE OAS INSTRUMENTATION WAS THE SUBJECT OF RID S7-103 WHICH WAS ~~DISAPPROVED~~ CAT'D. 16

3. RECOMMENDATION:
IF NASA APPROVES RID S7-103 FOR SIMCOM IMPLEMENTATION, THEN THIS RID SHOULD ALSO BE APPLIED TO SMS.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:
LOSS OF CONFIGURATION CONTROL BETWEEN OAS AND SMS.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
B. Griffin For C. Mire	B. Griffin

6. DISPOSITION

☐ Approved ☐ Disapproved ☐ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Clarke	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:
OAS RID CATEGORIZED 16 (SUBCONTRACTOR AFTER RFT) FOR SMS TO WAIT FOR SEPTEMBER 24 FOR SHATTER SHIELD ORDERING WOULD PRESENT A SCHEDULE CONSTRAINT. TO PROCEED WITH DESIGN FOR SMS (REQ'D TO ORDER 6/1/76) WOULD PRESENT A COST IMPACT.
[illegible] 4/21/76

8. SCP ACTION:
CAT 16

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

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ATTACHMENT 13 (5 Sheets)

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
01 BLANK			✓	6/24/76	V070-731390 due 9/17/7
1. ASS'Y			✓	6/24/76	V070-730290 due 11/28/7

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
O2 BLANK	V070-731400			6/24/74	Received
O2 ASSY			✓	6/26/74	V070-73-0291 due 7/30/74

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
03 BLANK	V070-731410				due 5/14/76
11 ASS'Y			✓	6/24/76	V070-730292 due 9/24/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
05 BLANK	V070-731420				DUE 4/16/76
11 ASSY			✓	6/24/76	V070-730293 due 8/27/7

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
06 BLANK			✓	6/24/74	V070-731430 due 8/6/76
11 ASS'Y			✓	6/24/74	V070-730294 due 12/3/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
07 BLANK		VL70-731440			due 6/11/76
11 ASSY			✓	4/24/76	V070-730295 due 11/19/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
08 BLANIC			✓	4/24/72	V070-731450 due 10/8/76
11 ASS'Y			✓	4/24/72	V070-730296 " 2/11/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
09 BLANC	V070-731400				due 5/28/76
1' ASS'Y			✓		V070-730297 due 10/1/7

ITEM	W/O-XXXXXX	VL/O-XXXXXX	DESCRIPTION # ACO-OPTION # 020-	SCHED. DATE	REMARKS
013 BLANK			✓	6/24/76	V070-731470 due 12/3/76
" ASS'Y			✓	6/24/76	V070-730298 " 4/1/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
014 BLANK	V070-731480				due 6/18/76
1. ASS'Y			✓	6/26/76	V070-730299 due 10/22/7

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # Φ20-	DECISION DATE	REMARKS
015 BLANK			✓	4/24/76	V070-731490 due 8/20/76
11 ASSY			✓	4/24/76	V070-730300 due 12/17/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
016 BLANK			C	6/24/74	V070-732000 due 10/1/74
" ASS'Y			C	6/24/74	V070-730301 " 8/4/74

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
017 BLANIC			✓	6/24/72	V070-732010 due 10/29/72
" ASS'Y				6/24/72	V070-730302 " 3/4/73

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
019 BLANK			✓	6/26/76	V070-732020 due 11/19/76
11 ASSY			✓	6/24/76	V070-730303 3/18/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F9A2 BLANK	V070-731220				due 4/30/76
" ASS'Y			✓	4/24/76	V070-730268 due 9/10/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
F1 BLANK			✓	6/24/76	V070-731050 due 8/27/76
1' ASS'Y			✓	6/24/76	V070-730250 due 1/14/77

MREH	V010-XXXXXX	VL10-XXXXXX	ASSUMPTION # H20- OPTION # 020-	DECISION DATE	REMARKS
FR BLANK			✓	5/1/76	V070-731060 due 12/17/76
" ASS'Y			✓	5/1/76	V070-730251 " 4/8/77
					(GLA Sh. old Assumed To
					be Same As OAS)

NITE H	V010-XXXXXX	VL10-XXXXXX	ASSEMBLY OPTION # Ø20-	DECISION DATE	REMARKS
F4 BLANK			✓	5/1/76	V070-731070 due 1/2/77
1. ASS'Y				5/1/76	V070-730252 " 4/15/77
					(GL Areshield Assumed
					To be same as OAS)

AREA	V010-XXXXXX	VL10-XXXXXX	ASSEMBLY OPTION # 020-	DECISION DATE	REMARKS
ESAI BLANK			✓	4/24/76	V070-73 done 7/11/77
11 ASSY				4/24/76	V070-730253 due NOT AVAIL

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
R2A1 BLANIC		VL70-731300			due 6/4/76
" ASS'Y			✓	6/24/76	V070-730277 due 11/5/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
R1A2 BLANIC	V070-731290				due 6/25/76
1. ASS'Y			✓	6/24/76	V070-730276 due 8/1/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
R1A1 BLANK	V070-731280				DUE 4/30/76
R1A1 ASS'Y			✓	6/24/76	V070-730275 due 8/13/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
RC BLANK	V070731270				DUE 3/19/76
RC ASS'Y			✓		V070-730279 due 8/6/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
L5 BLANK	V070-731270				Received
L5 ASSY			✓	6/26	
					V070-730274 Due 7/9/76

AREA	W10-XXXXX	VL10-XXXXX	OPTION : # 020-	DATE	REMARKS
L4A1 BLANK			✓	6/26/76	U070-731260 due 2/4/77
" ASS'Y			✓	6/26/76	U070-730273 " 5/13/77

NAME	VOID-AAAAAA	VLIU-AAAAAA	OPTION = # 020-	RELEASE DATE	REMARKS
L2A1 BLANK			✓	6/26/76	V070-731250 due 12/17/76
" ASS'Y			✓	6/26/76	V070-730272 " 4/15/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
LIA2 BLANIC			✓	4/24/76	V070-731240 dtd 11/5/76
" ASS'Y			✓	4/24/76	V070-730271 " 3/11/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
LIAI BLANK			✓	6/24	V070-731230 due 9/24/7
" ASS'Y			✓	6/24	V070-730270 due 11/28/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
R4A2BLANK			✓	6/24/76	V070-731310 due 8/13/76
11 ASS'Y			✓	6/24/76	V070-730278 due 12/11/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
C3A1 BLANK		VL70-731340			due 6/18/76
1. ASS'Y			✓	6/24/76	V070-730281 due 11/26/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # Φ20-	DECISION DATE	REMARKS
C3A2 BLANK			↙	6/11/76	V070-731850 due 9/10/76
1c ASS'Y			↙	6/24/76	V070-730280 due 11/21/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
[redacted]					
C3A5 BLANK			✓	6/11/71	V070-731360 due 11/12/7
" ASS'Y			✓	6/24/71	V070-737283 " 3/11/7

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
C3A6 BLANK	V070-731370				DUE 4/9/76
" ASS'Y			✓	6/24	V070-730284 due 8/20/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # $20-	DECISION DATE	REMARKS
C2A2 BLANK	V070-731330				RECEIVED
C2A2 ASS'Y			✓	6/24/76	V070-730280 - DUE 7/23/76

MREH	WIU-MMMM	VLIU-MMMM	OPTION # 020-	DATE	REMARKS
C3A7 BLANK			✓	6/1/76	0070-73 1380 due 11/26/76
" ASS'Y			✓	6/24/76	0070-73 0285 " 3/25/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F6 BLANK			✓	6/18/76	V070-73 1090 due 10/22
" ASS'Y			✓	6/18/76	V070-73 0255 " 2/18

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F6A1 BLANK	V070-731100				Received
F6A1 ASSY			✓	6/18/76	V070-730256 Due 7/23/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION : # φ20-	DECISION DATE	REMARKS
FLAS BLANK	V070-731110				due 6/18/76
1. ASS'Y			✓	6/19/76	V070-730257 due 10/29/

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
FLAT (BLANK)	V070-731120				DUE 4/2/76
FLAT (ASS'Y)			✓	4/19/76	V070-730258 due 8/13/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION : # φ20-	DECISION DATE	REMARKS
FLAB BLANIC			✓	6/18/72	V070-731130 due 10/15/7
11 Assy			✓	6/18/72	V070-730259 " 2/18/7

MECH	V010-AAAAA	V010-AAAAA	OPTION # 020-	DATE	REMARKS
F7 BLANK			~	6/24/76	V070-731140 due 2/11/77
" ASS'Y			/	6/24/76	V070-730260 " 5/20/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # ϕ20-	DECISION DATE	REMARKS
F1A5 BLANK	V070-731150				due 6/4/76
11 ASSY			✓	4/24/76	V070-730261 due 10/8/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
FLAT BLANK		VL70-731160			due 6/26/76
1. ASS'Y			✓	4/4/76	V070-730262 due 11/26/

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F8 BLANK			✓	6/25/71	V070-731170 due 9/3/72
11 ASS'Y			✓	6/25/71	V070-730263 due 11/14/72

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F8A4 BLANK	V070-731180				due 4/23/76
" ASS'Y			✓	6/25/76	V070-730264 due 8/30/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F8A5 BLANK		VL70-731190			due 6/18/76
" ASS'Y			✓	6/25/76	V070-730265 due 11/19/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F8A7 BLANK	V070-73 1200				due 5/7/76
" ASS'Y	1		✓	4/25/76	V070-730286 due 9/17/76

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
F8 A8 BLANK	V070-731210				due 6/11/76
1c Ass'y			✓	6/25/76	V070-730267 due 10/15/76

ITEM	V010-XXXXXX	VL10-XXXXXX	ASSUMPTION # H20-OPTION # 020-	DECISION DATE	REMARKS
FWD. CONSOLE INSTALL			✓	9/1/76	V070-730020 due 8/5/77
L.H. CONSOLE INSTALL			✓	9/1/76	V070-730021 due 8/19/77
R.H. CONSOLE INSTALL			✓	9/1/76	V070-730022 due 9/2/77
. CENTER CONSOLE INSTALL			✓	7/15/76	V070-730023 due 8/5/77
OVHD CONSOLE INSTALL			✓	10/1/76	V070-730024 due 8/5/77
ROTATIONAL HAND CONTROL			USE EXSISTING 101 DATA		V070-730025 due 8/19/77

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
OVERHEAD &		VL70-333582			Received DATA
EYEBROW		VL70-333581			Received DATA
STRUCTURE					

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
SIDE		VL70-333330		6/4	DRWGS Due 6/4/26
CONSOLE (LH & RH)		VL70-333331			

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
CIRCUIT		VL-70-339605		5/21	DRWGS Due 5/21
BREAKER		VL70-239604		5/21	DRWGS Due 5/21
STRUCTURE		VL70-333802		5/21	DRWGS Due 5/21
(LH & RH)		VL70-333803		5/21	DRWGS Due 5/21

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
BLOW OUT PNLS & STRUCTURE		VL70-333525			Received
		VL70-333526			↓
		VL70-333527			
		VL70-333528			Received

AREA	VAX-XXXXXX	VLX-XXXXXX	ASSOCIATED W. H20- OPTION # 020-	DECISION DATE	REMARKS
Center Console		VL70-333290		5/28/76	
		VL70-333291		5/28/76	

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # φ20-	DECISION DATE	REMARKS
VDC AIR Conditioning OUTLETS		VL 70-333160		6/4/76	
		VL 70-333161		6/4/76	

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # Φ20-	DECISION DATE	REMARKS
SCARESHIELD			✓	5/1/96	ASSUME SAME AS OA3 - 0V101 -
HC SUPPORT			✓	5/1/96	ASSUME SAME AS OA3 - 0U101 -

AREA	DATA / DRAWING TO BE USED V070-XXXXXX	VL70-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
FWD SHELL					SAME AS OAS
FWD FL. FRM					SAME AS OAS
FWD FL PNLS					SAME AS OAS
MDS FWD ST					SAME AS OAS
RUDDER PDLS					SAME AS OAS
SEAT STR					SAME AS OAS

MATL H	VOID-AAAAAA	VOID-AAAAAA	OPTION # 020-	DATE	REMARKS
SPEC CONTROL DRAWING EVENTSND.					
	MC432-0222			5/11/76	Released NOT in house
METER, TAPE	MC432-0232			5/11/76	Released NOT in house
X-POINTOR	MC432-0233		USE GFE supplied LEM Indicator	—	
ROUND, METER	MC432-0237			5/11/76	NOT Released Due Rel 9/23/7
METER VERTICAL	MC432-0238			5/11/76	NOT Released Due Rel 9/23/7
LIGHT ASSY	MC434-0068		SAME AS 101	—	
C&W ANNUN.	MC434-0069			5/24/76	
ANNN. DISPLAY	MC434-0070			5/24/76	
FIRE WARNING ANNUN.	MC434-0073			5/24/76	
SINGLE EVENT ANNUN	MC434-0075			5/24/76	
OVERHEAD FLOODLIGHTS	MC434-0078			5/1/76	SPEC RELEASE NOT in house
COMPUTER STATUS	MC434-0080			5/26/76	

AREA	VV10-XXXXXX	VL10-XXXXXX	ASSUMPTION # A20- OPTION # 020-	DECISION DATE	REMARKS
Spec Control DRAWING.					
Thumbwheel sw.	MC 452-0134			5/1/76	Spec Release not in house
Pushbutton sw	ME452-0060			5/26/76	
Switch Push button	ME452-0061			5/26/76	
Toggle switch	ME452-0102			5/1/76	Spec Release Not in hous

ATTACHMENT 14

SMS PROGRAM DIRECTIVE

1. INITIATOR	ORGANIZATION	DATE	NO.
CLIFF MIRE	JSC	4/20/76	N20-003P

TITLE
PANEL #019 DEFINITION

2. DESCRIPTION OF PROBLEM:

THERE IS INDICATION THAT THE PANEL #019 POWER CONTROL AND CONNECTORS ARE REMOVED.

3. RECOMMENDATION:

HOLD OFF ON PANEL #019 UNTIL THE DELETION OR RELOCATION CAN BE CONFIRMED AND IDENTIFIED BEFORE 6/26/76.

4. IMPACT, IF RECOMMENDATION NOT IMPLEMENTED:

SINGER WOULD PROBABLY EXPEND USELESS EFFORT.

5. CONCURRENCE

WBS MANAGER	TEAM LEADER
B. M. Gifford for C. Mire	B. M. Gifford

6. DISPOSITION

☐ Approved ☐ Disapproved ☒ Withdrawn
☐ Tech. Direction ☑ Contractor's Impact Statement Req.

COMMENTS:

APPROVAL

TECHNICAL MANAGER	DATE
L. Bailey	4/22/76

7. CONTRACTOR'S IMPACT STATEMENT:

NO COST OR SCHEDULE IMPACT.

W. Brown 4/21/76

8. SCP ACTION:

CAT 1

APPROVAL

SCP CHAIRMAN	DATE
McCafferty	4/22/76

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